MARINE REVIEW.

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Ore Business for 1898 in Definite Shape.

The action of the Bessemer ore producers in agreeing upon an advance of only 15 cents a ton in the base price of ore for 1898 does not seem advantageous to the vessel owner, but when the situation is viewed from the standpoint that a large increase in output is assured, it will certainly be admitted that the outlook is far more encouraging than during either of the past two years. There are a great many reasons for this conservative advance, which represents little more than the increase in miners' wages. It will cause immediate sales of ore, probably to an extent that will take up at once the great bulk of an increase in the output of Bessemer, estimated at about 1,100,000 tons. It will not tempt a resumption of operations in mines that cannot produce ore on the association basis of $2.75 a ton, and a more stable condition of the market is thus assured. It is also agreed that the low price will permit of full advantage being taken of all opportunities to increase export trade.

Last year the estimated output of old range Bessemer ores was 4,200,000 tons. This year it is about 6,000,000 tons, but the increase is not more than about 1,100,000 tons, as some 700,000 tons of this year's output will be represented by mines that produced ore last year but were not in the association. This increase in old range Bessemer production is definite, but the probable increase in production of ore of all kinds—Mesabi's and old range non-Bessemers included—is another question. In view of the great activity that prevails in all branches of the iron industry, there are many predictions of an output of 15,000,000 of ore of all kinds during the coming season, or 2,500,000 tons more than was produced in 1897. The ore dealers, as a rule, will not admit that the conditions warrant such predictions, but they are not very positive in declaring that the figures are unreasonable, in view of the agreement covering about 1,000,000 tons increase in old range Bessemers. Their main argument against a production of fifteen millions has reference to the ability of lower lake docks and railways to handle such a large amount of ore. The ore dealers will probably not be ready to make sales until the latter part of next week. Their correspondence would indicate that they will find furnace men ready to make purchases as soon as the ore is offered. Last year's lake freights, based on 70 cents from the head of Lake Superior for season contracts, are talked of among vessel men, and if this rate is offered it is more than probable that the lake freight on a large amount of ore will be covered at once, but if lower rates are demanded by the shippers it is quite probable that most of the vessel men will consider the amount of business in sight sufficient to warrant delay in chartering.

The present condition of the pig iron market and all views of the future point to very heavy production. During eight years past the estimates of pig iron consumption prepared at this time of year by the Bulletin of the American Iron & Steel Association have proven very close to the actual production. In most cases it was found when the year was at an end that the estimates, always very conservative, were close to the exact report of output. The Bulletin's estimate of consumption during 1897 is 9,383,388 tons, or about 245,000 tons less than the output in 1895, the boom year; and still it is generally agreed that the output in 1898, figured conservatively on the basis of production during several months past, will exceed that of 1897 by more than 1,000,000 tons. As another indication of the assurance of a large business in iron and steel for some time to come, it may be noted that southern producers of pig iron are now considering the establishment of a selling commission and an agreement to advance prices.

It would seem now that the soft coal dealers will again be involved in differences that will delay settlement of matters pertaining to lake coal shipments. The wage scale agreement is still unsigned by the Hocking Valley operators of Ohio and there is general fear of the usual trouble with miners about the time of beginning business in the spring. It was thought, a short time ago, that the broad scheme of a central selling agency for the soft coal product of Ohio would go through, putting the lake business on a solid basis, but it is said now that little progress has been made in this direction of late and that the scheme will probably be abandoned.

When the management of the Coatesworth elevator at Buffalo demanded last year's price, $1.35, for the use of steam shovels in unloading the Corrigan steamer Caledonia, several days ago, it was understood that the plan of Contractor Connors was to pay the full price and after doing so proceed against the elevator management in court or at Albany, on the claim that the elevators were violating the state law in making such a charge. It is now said that the management of the elevator at which the Caledonia was unloaded has since refused to accept the rate which they first demanded, probably in fear of what might follow a determination on the part of Connors to fight the matter out with them. It would therefore seem that the shoveling question will be settled on the basis of $1 for the steam shovels. J. A. Weisbeck, shore superintendent for the Lehigh Valley steamers at Buffalo, is now in Cleveland making arrangements to handle all package freight at this port next season under a contract that will probably be made between W. J. Connors and the package freight lines.

Joseph Rouleau and Leo Bernard, keepers of private lights on the Sault river, complain that they are poorly paid by the few contributions they receive from vessel owners. They threaten to discontinue the lights, which would seem to be the proper course on their part, as the question of compensation, if the lights are really needed, would be readily settled by such a course.

A Review of the Outlook from Duluth.

The following letter dealing with matters pertaining to lake business at Duluth is from La Salle & Co. of that city:

"Absolute inactivity characterizes the condition of the Duluth grain freight market. There has been an improvement in the receipts of grain, but the steady accumulation of stocks does not seem to stimulate activity on the part of eastern buyers. With cash wheat practically under the control of Chicago speculators, there is no reason to look for any immediate inquiry on the part of wheat shippers. Duluth makes a creditable showing of corn in store. This grain is controlled by the elevator companies, and as a carrying charge now prevails in this commodity, it is not probable that corn will be moved forward at the opening unless market conditions change. The opinion seems to be that oats will go forward promptly as soon as navigation permits. Rye is always an indefinite commodity here, and is sent forward usually in small lots, the railroad lines taking care of everything offering. The weather is extremely mild for this season of year. Outside there is no ice of any consequence, and unless surprisingly cold weather prevails from now on, the port of Duluth will be open at an unusually early date. Coal is being moved forward quite actively despite the warm weather that has prevailed in the northwest. People in authority seem to think there will be a good demand for coal tonnage early in the season. Below is a comparative statement of bushels of grain in store for the same day in 1897 and 1898:

Feb. 12, 1897.		Feb. 12, 1898.
3,843,051	Wheat	2,483,104
17,556	Corn	2,160,987
733,296	Rye	1,185,094
1,739,968	Oats.	1,880,078
771,981	Barley.	891,903
1,699,949	Flax.	627,186
8,805,801		8,948,352

"The lumber market continues without incident. Every day or two a small sale is reported, but it must be confessed that the inquiry is a little disappointing. The claim is made that the Duluth and Ashland markets are higher than other lake ports. This probably accounts for the small sales reported here. The quantity of unsold lumber on the docks here is between 90,000,000 and 100,000,000 feet. This lumber is confined mostly to inferior grades. One mill has already begun operations. While others will not get to work until the opening of navigation, the quantity of logs being received here by rail, and the extensive operations both here and in Wisconsin, promises great activity the coming season for the mills. Undoubtedly this will be the largest season in Duluth saw mill history."

Records of Lake Trade.

Washington dispatches again refer to the report on lake commerce made by Geo. G. Tunell of Chicago under the direction of the bureau of statistics, treasury department, but the extracts do not convey sufficient information regarding the document to judge of its merits as compared with other statistical work of its kind. A letter received from Mr. Tunell only a few days ago said that he had not then received proofs of the report. The extracts do not indicate anything in the way of a new line of inquiry prosecuted by Mr. Tunell to collect information that has been wanting on account of loose laws governing the coastwise trade on the lakes, but this was hardly expected, as the appropriation for the work was very small. A summary of the report will be made when the full text is at hand. It is to be printed as a separate document. In a letter accompanying the report, Secretary Gage suggests that the commerce of the lakes should be made a subject of annual record. It is to be hoped that the secretary will follow up this suggestion by securing such changes in the statutes as will permit of reliable statistics being collected in all branches of the lake trade.

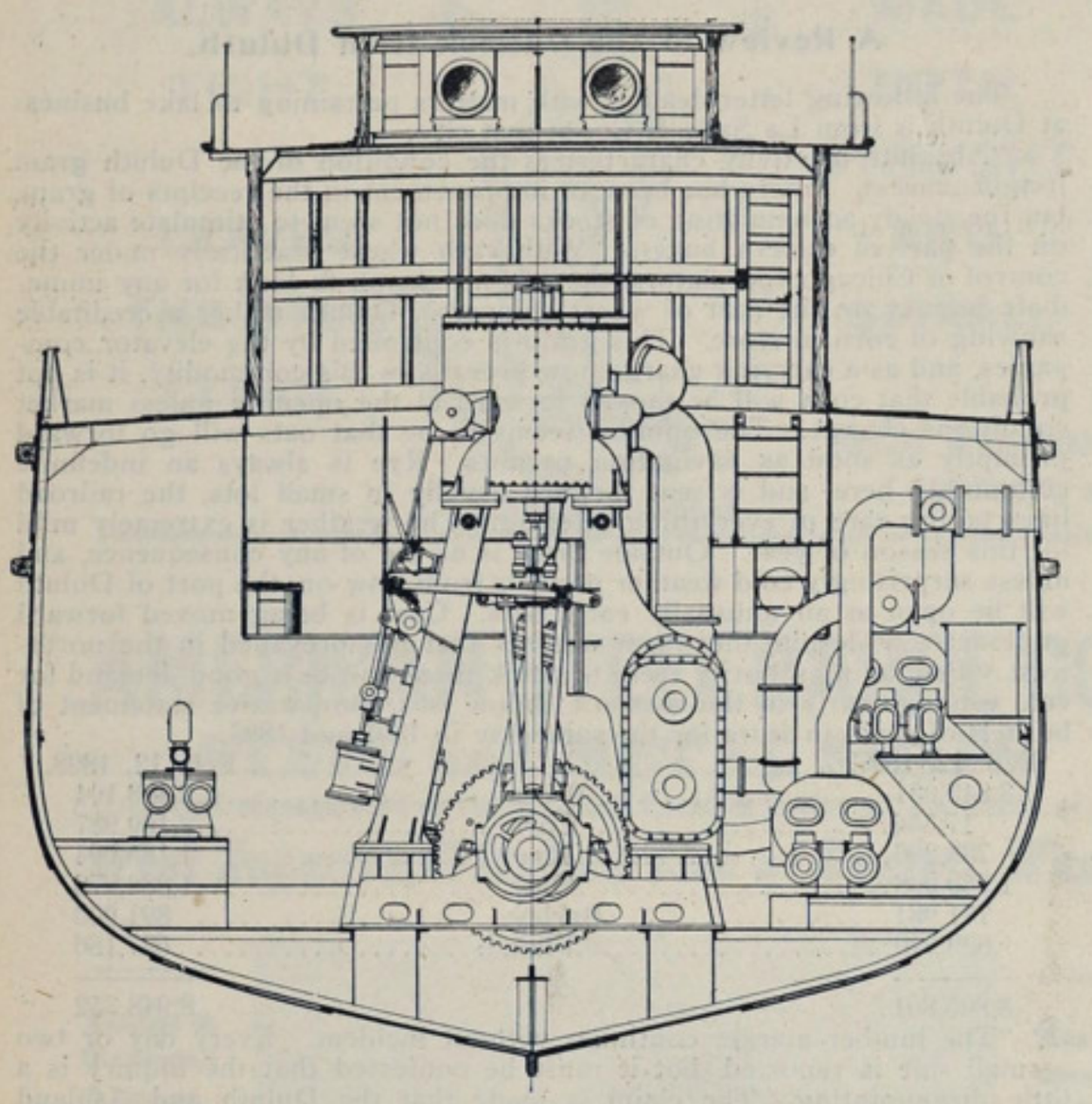
"I cannot," says the secretary, "too strongly urge the expediency of making this commerce the subject of annual record and investigation. The statistics of railway transportation have become a recognized branch of the government's statistical service; but the necessary complement, the movement of merchandise on the lakes, rivers and canals, has beeen neglected. Compared with the shipping tonnage employed in the foreign commerce of the United States, the activity of lake shipping is far greater. The bulk of transactions in the lake carrying interests is so large as to rank it among the great conveyors of the world. The concentration upon a small number of commodities, as well as in a few companies, appears to make statistical records comparatively simple. On the important economic influences of this trade I need not dwell. They are of vital importance in feeding the domestic industries and in permitting a further extension of American commercial interests in the foreign markets. These influences are becoming stronger each year, and I believe the time has come when they should be made subject to official record, in order that they may be intelligently studied and directed so as to produce the highest benefits to the industrial and commercial interests of the United States."

A tug to be built for the Goodrich Transportation Co. at Manitowoc will be 100 feet over all, 90 feet keel, 20 feet beam and 12 feet molded depth. Some arrangement will probably be made with the Manitowoc authorities to equip this tug for fire service.

Major Symons, United States engineer at Buffalo, will open bids on Monday next for dredging at Erie harbor.

Two Modern Steel Tugs.

Few vessels built on the lakes have attracted more attention than the ocean-going steel tugs Robert W. Wilmot and Wm. H. Brown, the former owned by W. G. Wilmot of New Orleans and the latter by W. H. Brown of Pittsburg. Both were built by F. W. Wheeler & Co. of West Bay City, Mich., and both are intended for service on the Gulf of Mexico.



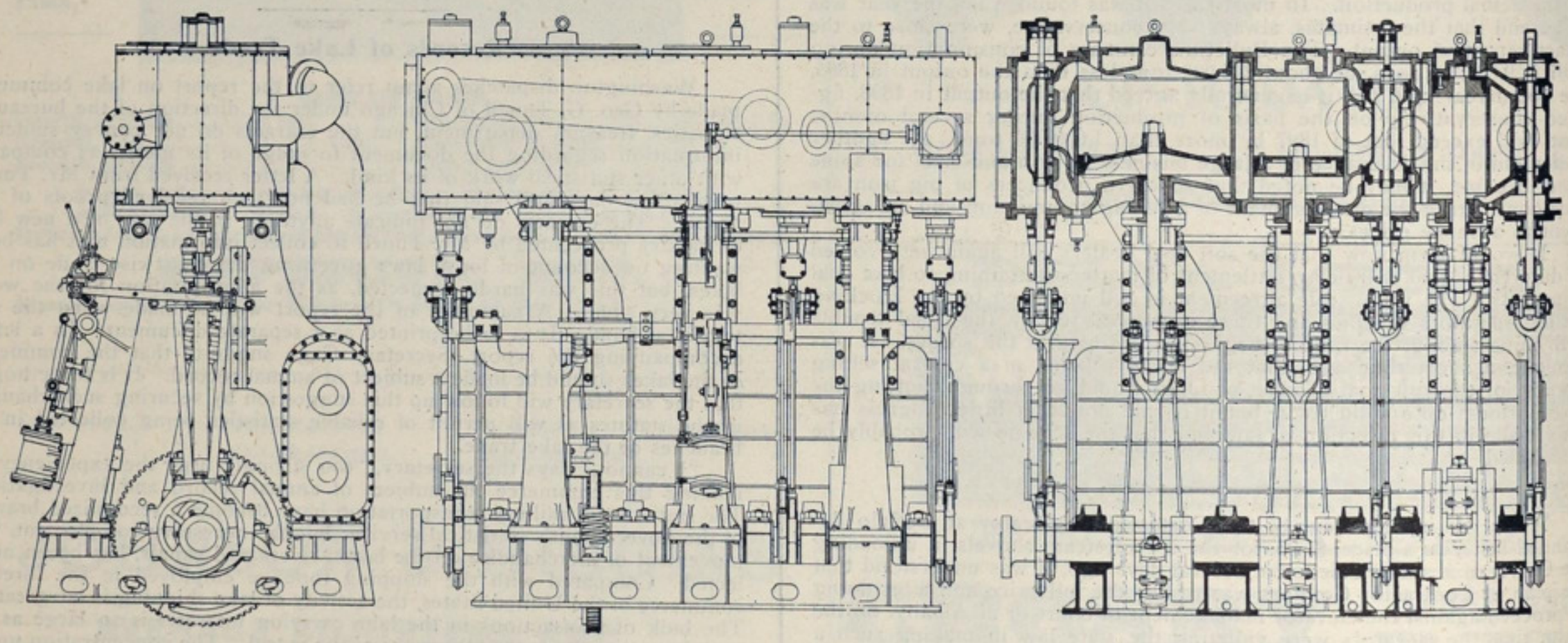
SECTION THROUGH ENGINE ROOM, TUGS R. W. WILMOT AND W. H. BROWN.

The Review is indebted to Mr. Sven Anderson of the Wheeler works for drawings that will assist in describing these tugs. They are the largest and most powerful tugs in the United States, and they are fitted with everything in the way of modern appliances used on ships. The Wm. H. Brown was built very rapidly. Her keel was laid Sept. 2, 1896; fifty days later (Oct. 21) she was launched, and she left the ship yard Nov. 11 under her own steam.

The principal dimensions of these tugs are: Length over all, 156 feet 8 inches; length between perpendiculars, 143 feet 4 inches; molded beam, 28 feet; molded depth, 17 feet. On account of the very powerful machinery with which they are fitted, and the requirement that they should be able to cross the Atlantic safely, the tugs were made very strong, their scantlings exceeding the highest requirements of the standard registers. Accommodations for owners and crew are provided in a steel deck house 16 feet wide, extending well forward and aft. In this deck house are located the dining room, galley, wrecking room, engineers', oilers' and deckhands' rooms, commodious room for owners, and towing machine room. The pilot-house and texas, in which are the captain's and mates' rooms, are above this deck house and are also built of steel. The interior of the pilot-house, dining room, engine room, and owners' and officers' rooms are panelled with mahogany. Large sidelights are fitted wherever necessary. A distilling plant of 2,000 gallons capacity per day is located in the engine room, and a fresh water receiving tank holding 1,000 gallons is placed in the hold forward. Aft of the engine room is a dunnage room about 11 feet in length and extending across the entire width of the ship. One of the American Ship Windlass Co.'s steam windlasses is placed forward and a steam capstan aft. In the after end of the deck house is a steam towing machine, having 14 by 14-inch cylinders, also of American Ship Windlass make, and a wire cable of 1¾ inches diameter and 200 fathoms length. The steam steering engine is of Williamson Bros.' (Philadelphia) make. There is also a complete electric plant on board, with incandescent lights for all parts of the vessel and a search-light on top of pilot-house. The rigging in both tugs is from two steel spars. There is a full set of sails to be used in case of emergency.

The type of engine fitted in both tugs is inverted direct-acting surface condensing triple expansion, with cylinders 20, 32½ and 55 inches, and a common stroke of 36 inches. The cylinders are placed in the order H. P., I. P., L. P. The L. P. cylinder has a double-ported slide valve, and the I. P. and H. P. have single-ported piston valves with spring rings. All valves are worked by the Stephenson double-bar link motion, with adjustable cut-off arrangement, and the valve motion is controlled by a steam reversing gear. The bedplate is of the box-girder type, cast in one piece with five large main journals. The front columns are of the straight box type, provided with the necessary brackets and journals to support the reverse shaft, and the back columns are cast on the condenser with large bearing surface for the crosshead slippers. The condenser is cast in three sections, having ground joints strongly bolted together, and it contains a cooling surface of 3,000 square feet. The crankshaft is of wrought iron with steel pins and of the built-up type, 11 inches diameter, with cranks set at angles 120 degrees apart. The thrust shaft has eight solid thrust collars, forged on, and the thrust bearing is of the ordinary horseshoe type, with eight driving collars faced with anti-friction metal. The propeller shaft is 11½ inches in diameter in the stern bearing, which consists of a cast-iron sleeve in halves, and four sections, 4 feet 6 inches long, arranged so that the sleeve can be removed without unshipping rudder or propeller. The propeller is of the sectional type, cast steel, four blades, and secured to shaft by taper and nut. Connecting rods are of wrought iron with upper ends forked to suit crosshead and the usual bolt connections. The crossheads are of wrought iron with double gudgeons and slipper forged on. Piston rods are of the best machinery steel with tapered ends and nuts for securing pistons and crossheads. The pistons are of cast iron in H. P. and I. P. cylinders, and of cast steel of conical shape in L. P. cylinder. The engine is fitted complete with balance pistons for I. P. and L. P. cylinder valves, balanced throttle valve, worm-pinch gear, cooler service relief valves for cylinders, and valve chests and all necessary instruments, such as steam and vacuum gauges, clock and revolution counter, and the cylinders, are neatly lagged with sheet steel. Both air and circulating pumps are of the independent duplex type, having bronze rods and lined with brass. Condenser and air pumps are so designed that the engine can be worked jet condensing at any time.

Steam is furnished at 180 pounds working pressure by two return tubular cylindrical boilers, 12½ by 12½ feet, having three 40-inch Adamson furnaces. A 50-inch fan is provided for forced ventilation in fire-hold. When engines are running at 800 feet piston speed, per minute, under 180 pounds steam pressure, these vessels are expected to develop a speed of 20 miles an hour.



TRIPLE EXPANSION ENGINES OF TUGS R. W. WILMOT AND W. H. BROWN.

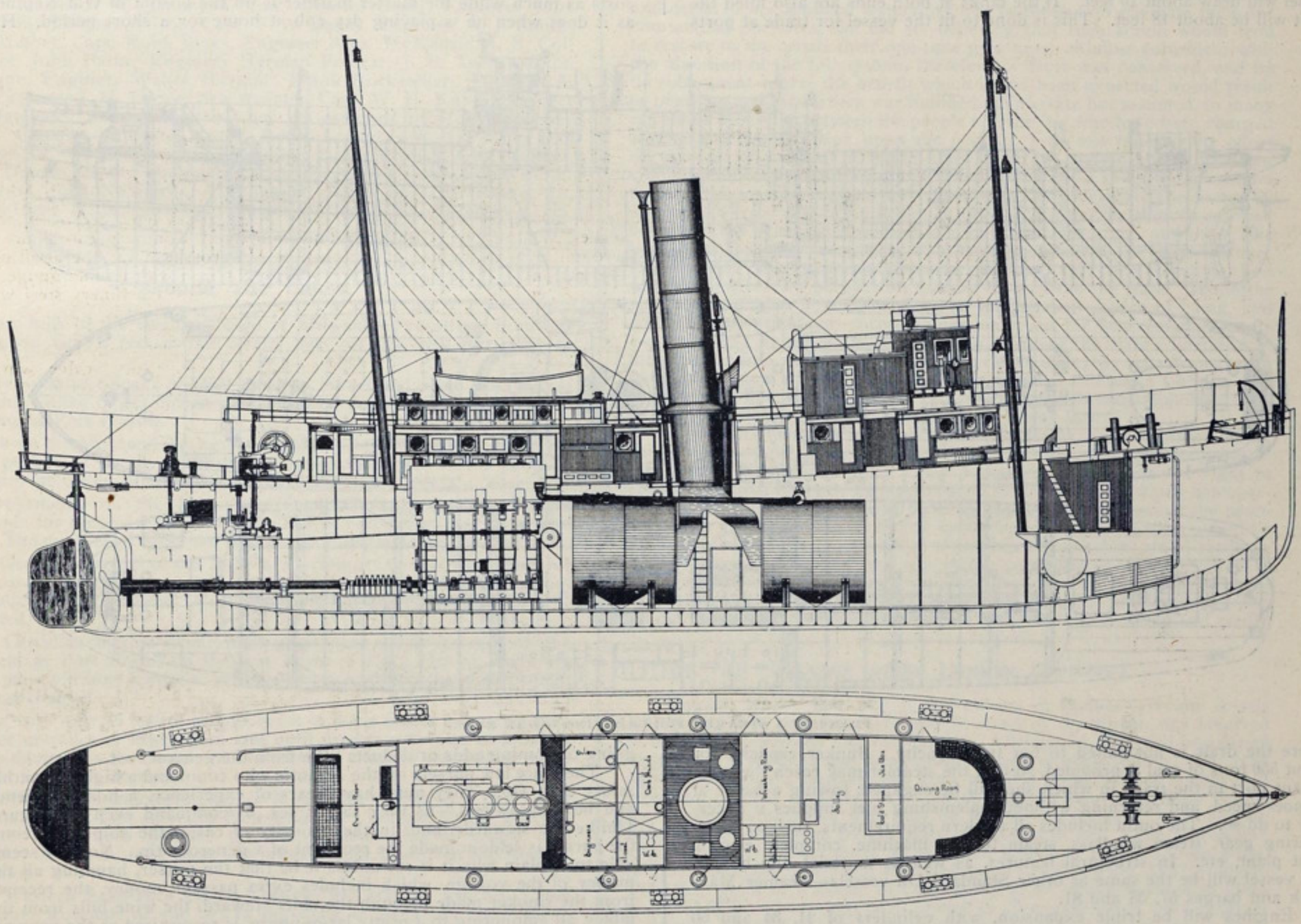
The Detroit Dry Dock Co. is shipping three car loads of machinery to Seattle for a Yukon river steamer that is building at Dutch Harbor. Secretary Gilbert N. McMillan of this company says that the package freight steamer which they are building for the Western Transit Co. will be a model for the package freight trade of the future. He says they are sparing no pains to make her the finest vessel of her kind afloat.

The Marine Review has the latest Georgian bay charts.

At the Detroit Ship Yards.

Detroit, Mich., Feb. 16.—"I have never seen the time during my connection with the Detroit Dry Dock Co.," says Gilbert N. McMillan, "when the amount of business in sight was greater than it is at present. Alike to everybody else, we are, of course, working on small margins, but there is a great deal of encouragement in a large volume of business. If we do not meet with some unforeseen setback on account of labor troubles, or other difficulties of the kind that are always feared, we will undertake, a little later on, some definite plans for business enlargement, which are prompted by the general hope that this country is to see two or three years of genuine activity. The improvements will include a dry dock project that is not as yet in shape to be given out, and other enlargements of our present facilities, that will enable us to make repairs on the 6,000-ton steel ships at minimum cost. There is room enough for all the ship builders now on the lakes, if they make improvements to meet requirements of the times, no matter what the big ship-owning interests may do in the way of close alliances with some of the plants. Our boiler works and machine shop have been so crowded this winter that we are sub-letting a large part of the work, and we have no fear as to next year's business. We propose to still follow the policy of doing the best kind of work and insisting upon some profit in all contracts. Some of the prices at which contracts for new ships have been let of late do not admit of profit to the builders. When they figure up their losses they will find that they would have been better off if their yards had been idle, and they will stand out for better prices in the future."

The Dry Dock company is expecting to receive an order for another new vessel shortly. They have finally concluded arrangements with Mr. James Howden of Glasgow for the agency of the Howden draft on the Atlantic coast. They will manufacture the draft appliances at Detroit and supply them to any of the coast builders with whom arrangements may be made for its use. Officers of the company are greatly pleased with the publication of a pamphlet by the navy department dealing with the contract trials of the gunboats Wheeling and Marietta. The pamphlet is a reprint from Vol. IX, No. 4, of the Journal of the American Society of Naval Engineers. The Wheeling and Marietta are composite twin-screw gunboats, built by the Union Iron Works of San Francisco. These vessels cost about $220,000 each and are as alike in hull and engine dimensions as it was possible to make them, but the Wheeling has cylindrical boilers fitted with Howden hot draft, while the Marietta has Babcock & Wilcox water tube boilers of marine type with ash pit draft. The contract speed was 12 knots, to be maintained for four consecutive hours. Dimensions of the vessels are as follows: Length between perpendiculars, 174 feet; length over all, 189 feet; extreme beam, 34 feet; depth at side from keel to top of main deck beam, 22 feet 8 inches; mean draft, normal, at sea-going trim, 12 feet; normal displacement, 996 tons. The twin-screw engines are of the vertical, inverted, direct-acting, three-cylinder, triple-expansion type, and were designed to develop 800 I. H. P. when running at 200 revolutions and with 180 pounds of steam in the boilers. The cylinders are 12, 18 and 28 inches in diameter and the stroke is 18 inches. Propellers are three-bladed, solid and of manganese bronze, 6 feet 9 inches in diameter and 7 feet 3 inches pitch. The two single-ended, horizontal, cylindrical boilers in the Wheeling are 10½ by 10½ feet, and they have a combined heating surface of 2,508 square feet and a grate surface of 60 square feet. Heating surface of the two water tube boilers in the Marietta aggregates 3,620 square feet, while the grate surface is 98 square feet. In weight there is an advantage of about 20 tons in the case of the water tube boilers, which with water, uptakes and smoke pipe, foot up only 60 tons, as against 80 tons for the cylindrical boilers with their fittings. From the contract trial data it is found that the speed of the Wheeling (cylindrical boilers and Howden draft) was 12.88 knots, while that of the Marietta (water tube boilers) was 13.02 knots. But it is the record of coal consumption that pleases the advocates of artificial draft. The quantity consumed per hour on the Marietta was 2,300, and per I. H. P. (total) per hour, 2.18 pounds. The figures for the Wheeling were 1,855.5 and 1.72, respectively.



PLANS OF OCEAN-GOING TUGS R. W. WILMOT AND W. H. BROWN, BUILT BY F. W. WHEELER & CO., WEST BAY CITY, MICH.

Stocks of Grain at Lake Ports.

The following table, prepared from reports of the Chicago board of trade, shows the stocks of wheat and corn in store in regular elevators at the principal points of accumulation on the lakes, Feb. 12, 1898:

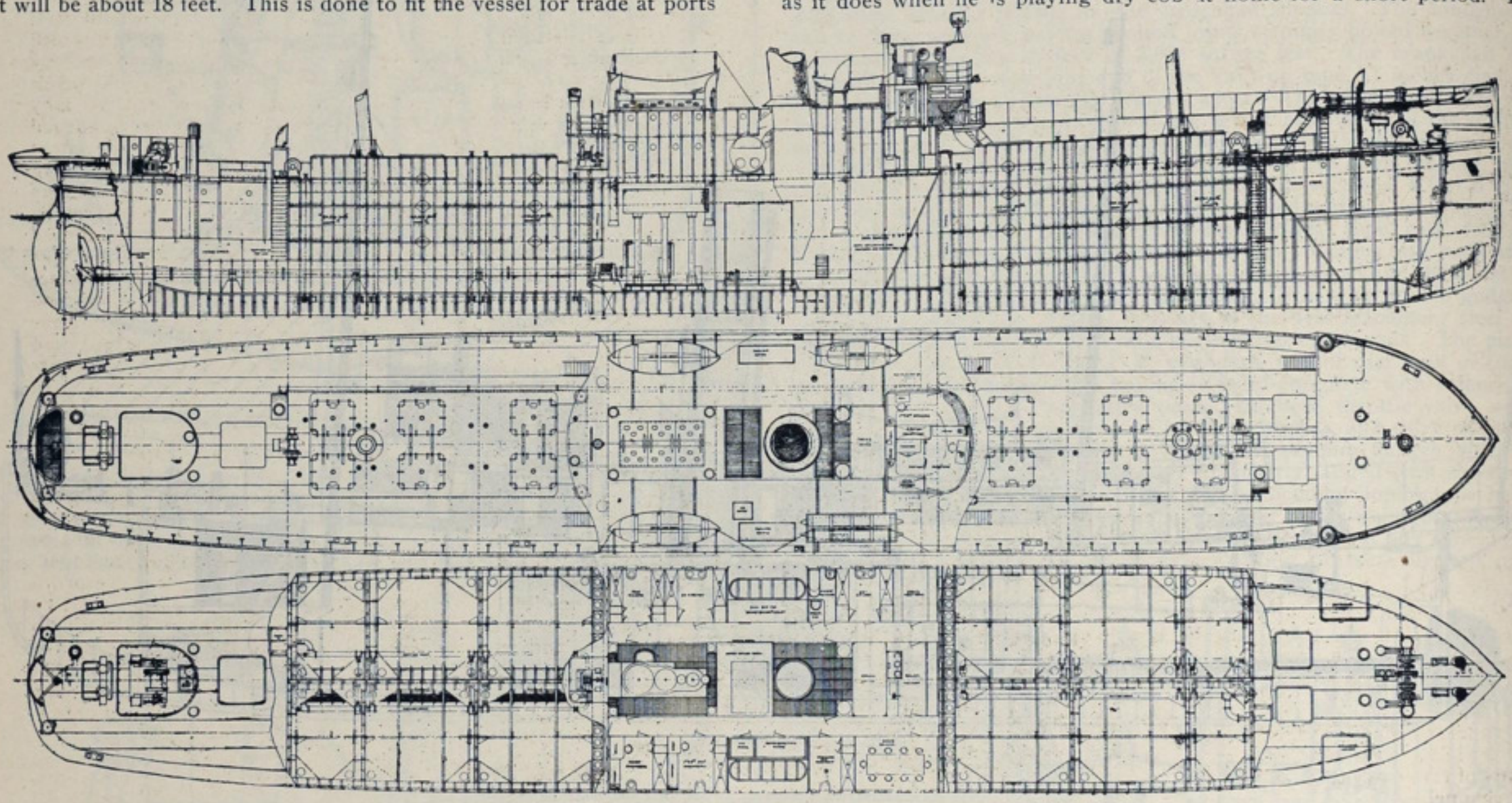
	Wheat, bushels.	Corn, bushels.
Chicago	9,725,000	15,834,000
Duluth	2,483,000	2,181,000
Milwaukee	130,000	123,000
Detroit	127,000	16,000
Toledo	259,000	469,000
Buffalo	1,119,000	1,773,000
	13,843,000	20,396,000

As compared with a week ago, the above figures show, at the several points named, an increase of 134,000 bushels of wheat and a decrease of 486,000 bushels of corn. On the same date there was afloat at Chicago 1,495,000 bushels of wheat, 6,216,000 bushels of corn, 232,000 bushels of oats, 89,000 bushels of rye and 93,000 bushels of barley; at Buffalo, 440,000 bushels of wheat and 84,000 bushels of rye; and at Milwaukee 838,000 bushels of corn and 214,000 bushels of oats.

A Modern Bulk Oil Carrier.

An engraving descriptive of the oil steamer for which a contract was closed a few days ago with the management of the Roach ship yard, Chester, Pa., appears on this page. The vessel is for the lighterage and transportation department of the Standard Oil Co., of which Mr. R. C. Viet of New York is superintendent. This vessel is expected to carry 720,000 gallons of oil in bulk. She was designed for both the coast and lake trades, and her length has therefore been limited to the size of the enlarged locks in the St. Lawrence canals, which it is said will be completed before the opening of navigation next year.

Dimensions of the vessel are: Length over all, 264 feet; length between perpendiculars (after side of stem to fore side of rudder post), 254 feet; beam, molded, 40 feet; depth, 23 feet 6 inches. Machinery will be located in the center of this steamer, as it is claimed that central location of machinery in a vessel of this kind secures better trim, both light and loaded, and especially when considerable bunker capacity must be provided. Safety with the oil is amply provided for by cofferdams at both sides of the machinery space and by having separate pumps and pipes for the oil forward and aft of this space. Accommodations for officers and crew are also amidships in a bridge enclosure, which forms additional protection for the machinery and also enables the crew to attend to their work without the disadvantage of traversing the deck in bad weather. The oil tanks are so arranged that when eight central tanks are filled the vessel will draw about 16 feet. If the tanks at both ends are also filled the draft will be about 18 feet. This is done to fit the vessel for trade at ports where the draft is not suited to her full capacity. Bunker capacity for about 550 tons of coal is provided, so that the steamer may reach the most distant port in the trade in which she will be engaged, towing a barge at 8 knots speed, and returning without replenishing fuel supplies if necessary to do so. The outfit includes all modern requirements, such as steam steering gear, steam windlass, steam towing machine, complete electric light plant, etc. In structural features, as well as material, the hull of this vessel will be the same as other Standard Oil vessels—steamer Maverick and barges 57, 58 and 81.



PLANS OF A STEAMER FOR CARRYING OIL IN BULK.

Engines will be triple expansion, with cylinders of 21, 34 and 56 inches diameter and 42 inches stroke. A surface condenser and independent air, circulating and feed pumps will be other features of the machinery. Two Scotch boilers of 14 feet 6 inches diameter and 12 feet 9 inches length, with three corrugated furnaces, will furnish steam at 175 pounds pressure. The Review is indebted to Mr. John Haug, consulting engineer and naval architect of Philadelphia, for the illustration and description of this steamer.

Although the management of the Northern Steamship Co. must be satisfied this year with putting new steel decks on the freight steamers of the line, and otherwise improving them, it is more than probable that they will place orders later on for two or three package freighters of large capacity. It is only a few years since the steel freight steamers of this line were built, but they are now regarded as unequal to the requirements of the Great Northern service. President Hill is said to have referred to these steamers as canoes during a recent conversation in which he was discussing the mistake of not making them larger in the beginning. It is said on very good authority that the Northern line passenger steamers made money last season.

The Brown Hoisting & Conveying Machine Co. of Cleveland is engaged on foreign orders to an extent sufficient to require the attention of several representatives, who have recently left Cleveland to supervise the erection of machinery at Krupp works in Germany and at other large foreign establishments.

Officers of Big Liners Are Not Well Paid.

It may surprise some of the regular trans-Atlantic travelers to learn that their beau ideal of a sea captain, who in faultless gold lace goes about the deck laughing and chatting with the tourists, patting the half-fare tots on the back and doffing his cap to the rug-clad occupants of an easy steamer chair, between the time that he spends in his berth, in the chart room or on the bridge, gets little more money a month than the skippers on ordinary freight steamers. In many instances Mr. Gold Lace gets less. One of the most successful lines running between New York and Europe pays its commodore, who has been over twenty years in this particular service, £35 a month, or about $175. This is about $40 a week. The other captains in this line are paid the equivalent of $125 for thirty days' labor. Any number of matter-of-no-fact stories have been printed with the object of showing that the commanders of the great liners received in some cases sums ranging from $7,000 to $12,000 per year. But such talk is idle. There is not a single captain on the ocean who enjoys any such income. That many of them deserve to is another matter entirely. In an argument that master mariners are well paid, the point is advanced that the officers are fed while at sea and even alongside the wharf with the best that the market affords and at the expense of the steamship company. Yet 80 per cent. of these well-fed gold laces are married and have big families that demand food, clothes and a home either here or abroad, whether or not the ship is in port. This establishment costs as much while the master mariner is on the bosom of Old Neptune as it does when he is playing dry cob at home for a short period. His going or coming adds or deducts little from the general cost.

There are few pursers on the Atlantic who command a higher monthly salary than £10. They must have years of experience, a host of friends and be "topsawyers," as they say at sea, to command even this figure. Unlike the stewards, and, in the majority of cases, the ships' surgeons, the purser is seldom made the recipient of a generous tip. Nobody seems able to explain why it is so, unless it be that the purser, handling all the money of the voyage, which includes extra passage money, the receipts from the smoker made through the chief steward, the wine bills from the tables, all amounting to a pretty large figure, is recognized as the financial end of the floating hotel and is treated accordingly. There is no man aboard ship who is more generally thrown in with the passengers than the purser; and there is none who is capable of making himself more popular, or the reverse. Seven-eighths of the complaints go to him, and he has the power to rectify them if he will. He can change the berth, or even the room of the passenger who thinks the accommodation assigned him not up to expectation. That in itself is the source of a great deal of his popularity. He may go into the smoker at night when his assistant is maintaining the rigor of office hours, puff away at his brier and make himself generally agreeable with the passengers. The smoker and its many attachments are luxuries which the captain is not permitted to enjoy, or if permitted, rarely indulges in. Any skipper who would make himself a jolly good fellow in the smoker would lose the confidence of those under his care as fast as a trout taking a May fly. Not that his appearance there would make him any less the sailor, but passengers, for some reason or another, seem to believe that the only place for the master of their ship is on the bridge or in the chart room. And if they can picture him on this bridge in oilskins and so'wester, with the wind and sleet and ice blustering around him, so much the better to the perfection of their idea of the practical and capable mariner.—New York Mail and Express.

Capt. James Lowe, who has sailed the steamer Pontiac since she was built, will next season take command of the steamer building at Lorain for Mr. W. G. Mather and others of the Presque Isle Transportation Co. Capt. Lowe will be succeeded in the Pontiac by Capt. Montague, who has been in the employ of C. W. Elphicke & Co. for some time past.

Officers of a Big Fleet.

Mr. H. Coubly, manager of the transportation department of Pickands, Mather & Co., Cleveland, having decided upon captains and engineers for all the vessels in his charge, has concluded to give out the list, which follows:

Minnesota Steamship Co.: Steamers—Manola, Capt. A. P. Chambers, Engineer D. A. Black; Mariska, Capt. H. Zealand, Engineer David Burns; Maruba, Capt. F. J. Crowley, Engineer B. F. McCanna; Matoa, Capt. A. H. Reed, Engineer W. W. Tyler; Marina, Capt. J. W. Morgan, Engineer W. A. Meddaugh; Masaba, Capt. H. C. McCallum, Engineer A. L. Wilcox; Maritana, Capt. C. H. Bassett, Engineer Geo. Arnold; Mariposa, Capt. F. D. Root, Engineer F. A. Smith; Maricopa, Capt. G. B. Mallory, Engineer P. J. June. Barges—New barge, Capt. A. J. Talbott; Martha, Capt. E. L. Sawyer; Magna, Capt. John Weeks; Manda, Capt. H. Savage; Malta, Capt. H. Culp; Marcia, Capt. M. K. Chamberlin.

Interlake Co.: Steamers—Kearsarge, Capt. Robt. McDowell, Engineer L. H. Sebastian; Victory, Capt. Fred. Hoffman, Engineer Thos. Treleaven. Barge—Constitution, Capt. Wm. Holly.

Huron Barge Co.: Steamer—Pathfinder, Capt. W. B. McGregor, Engineer C. A. Heisner. Barge—Sagamore, Capt. E. C. Joiner.

American Steel Barge Co.: Steamers—Colgate Hoyt, Capt. Neil Campbell, Engineer Gilbert Patterson; E. B. Bartlett, Capt. M. C. Cameron, Engineer John Dupont; J. L. Colby, Capt. C. D. Secord, Engineer Wm. Densmore; A. D. Thomson, Capt. Charles Grant, Engineer John McLaughlin; Thomas Wilson, Capt. F. A. Bailey, Engineer A. J. Smith; Samuel Mather, Capt. Robt. Jones, Engineer Alex. McKenzie; J. B. Colgate, Capt. John Parke, Engineer Herman Folkert; J. B. Trevor, Capt. John Dunn, Engineer Walter Harsant; Frank Rockefeller, Capt. M. A. Boyce, Engineer J. H. Pierce; new steamer, Capt. W. H. Kilby, Engineer Irwin Marshall. Barges (captains not yet assigned to their respective boats): Captains—Edward Morey, Louis Leonard, W. H. Dick, Dan McFadgen, R. W. Gleason, G. W. Smith, Robt. Brooks, Geo. Gallant, Willard Damon, Robt. Thompson, Geo. Jorgenson, John Sprowell, E. Emanuelson, John Nahrstedt, A. Siljander, James Burr, H. Harris, Jr., A. G. McLeod, H. M. Saveland, Samuel Durfee, J. W. Norcross, C. H. Noble.

Around the Lakes.

Repair bills of the steamer Iosco at Milwaukee, resulting from her stranding on Gray's reef in the Straits late last fall, will run close to $20,000.

Representative Snover of Michigan has introduced a bill in congress to have the United States circuit court, eastern district of Michigan, hold its sessions in Port Huron.

Work on the Montreal Transportation Co.'s new elevator at Kingston is being pushed as rapidly as possible. Its capacity will be the same as the elevator at Owen Sound—800,000 bushels.

Improvements on the Minnesota Dock Co.'s ore dock at Buffalo will provide for a considerable increase in ore receipts at that port next season. The number of McMyler derricks is to be increased to eight.

Mr. Geo. S. Gatchell of the Buffalo Elevating Co. says that plans for the proposed steel elevator to replace the burned Sturges elevator are not as yet ready and he is unable to say when the matter of rebuilding will be fully settled.

The Canadian marine department gives notice that instead of the single light at Port Elgin, on the east shore of Lake Huron, there are now two pairs of range lights, so arranged as to lead into the port through the deepest channel.

A bar with only 15 feet of water over it in some places extends across the harbor entrance at Muskegon, and until dredging can be undertaken it will be dangerous for vessels of even 12 feet draft to attempt to enter the harbor in rough weather.

The Sheriffs Manufacturing Co. of Milwaukee has shipped two 5-foot wheels and one 8½-foot wheel to New Orleans. Wheels 12 feet 6 inches in diameter have been finished for the steamers City of Venice and A. Nimick. A wheel of the same size was recently placed on the steamer Fred. Pabst.

The Western Assurance Co. of Toronto will sell the wrecked Canadian steamer Rosedale as she lies in dry dock at Kingston on Tuesday next. It is quite probable that the vessel will be purchased by her former owners, J. H. G. Hagerty and others of Toronto, as they are in need of a vessel.

Capt. W. H. Wilson, whose death was announced from Detroit on Monday last, had been in command of the Detroit steamer Wm. Livingstone for eight years past. He was stricken with paralysis in October last while coming down Lake Michigan. He was sixty-one years of age and had followed the lakes from boyhood. His father, ninety-four years of age, who was also a ship master, still lives in Detroit.

Capt. Townsend, United States engineer in charge of one of the Lake Michigan districts, recommends improvements at St. Joseph and Benton Harbor, Mich. He suggests that the entrance to the harbor, and space 150 feet wide along the city front of St. Joseph, and the turning basin at the mouth of the St. Joseph river, be dredged to a depth of fifteen feet. He estimates the cost of the work to be $380,000, and $10,000 the amount necessary annually for its maintenance.

A chart showing average times of the opening of navigation at places on the great lakes, with the mean departure from the average of the yearly dates of the close of the ice season, has just been published by the hydrographic office. It was prepared from data furnished by the Deep Waterways Commission. Many of the publications of the hydrographic office are valuable, but this is not one of them. It seems like a waste of time and money to prepare elaborate maps of this kind when they are of so little practical use. Some of the dates noted as the average time of opening navigation relate to the first movements of vessels engaged in local trade. Such vessels might be running all winter if there was business enough to warrant their operation.

Legislation Against the Buffalo Elevator Combination.

It would not be at all surprising to find that the elevator interests of Buffalo will be unable to agree upon a pool of any kind for the coming year. The management of the Great Northern and other new elevators will, of course, demand a big share of the business that must result in the worthless old elevators being debarred from any further division of profits. But the competition of new elevators is not the only factor tending to a marked reduction in grain handling charges at Buffalo. The fear of legislation at Albany that will regulate the elevator business of New York state is acting against exorbitant charges. With the close of another season it will probably be found that there will be no further cause for complaint on the score that unreasonable charges at Buffalo are depriving the lakes of any part of the grain business that should naturally pass through that port to the seaboard. The superintendent of public works in New York state, Mr. G. W. Aldridge, is the latest official to direct attention to this question of excessive terminal charges on grain. In his annual report, just issued, he says:

"While I am not prepared to go to the extent of advocating a scheme whereby the state shall enter the field as an active competitor of the elevator trust, I believe the abuses of the so-called combine have reached such a point in their effect upon our commercial interests, that the state will be justified in taking extreme measures to render a continuance of the abuses impossible. When, in 1882, the state abolished the toll system and declared her artificial waterways free to those who navigate them for commercial purposes, she did so, believing that such action would tend to restore to the canals their one-time greatness. Almost coincident with the abolition of the toll system, the elevator trust was conceived, and by its subsequent course the benefit which it had been expected would result to boatmen and forwarders was nullified. The state has assumed, in many instances, to step in between the people and the few who have been charged with practicing extortion upon the people. I do not refer to the effort on the part of the state to place a law upon the statute books declaring combinations of capital illegal, but rather to the effort to fix the maximum rates which may be charged for commodities or services. The fixing by statute of a legal rate per mile which may be charged by a given railroad company, the price per thousand feet for illuminating gas, and other like legislation, may be instanced. The basis upon which the state assumes to place such defining statutes upon her books is that such companies and corporations receive permission to exist direct from the state. While the elevator trust may be able to plead an independent source of being, and contend that it holds no corporate existence, yet the fact remains that its existence and its profits as well are the result of the state's liberality in maintaining free waterways. Of what avail is it for the state to maintain free waterways if private greed shall be permitted to build a Chinese wall at either end of these waterways, and say to boatmen and shippers: 'Yield us our price or go forth and navigate with empty boats.'"

As another means of increasing the canal traffic, Supt. Aldridge favors the removal of the present $50,000 limit which governs the formation of forwarding companies. With a law delegating to the state the right to control terminal charges, the superintendent says the fear which has operated to marshal the influence of boatmen and forwarders against the proposition to allow increase of capital by transportation companies would be entirely eliminated. He says that a number of capitalists stand ready to embark their money and energies in the construction and operation of canal boats constructed on most modern lines as soon as the $50,000 prohibition is removed. The proposed increase in capital stock would result in the formation of energetic companies with financial standing and credit.

Success to the Lumber Carriers!

Detroit, Mich., Feb. 16.—If the owners of lumber-carrying vessels who closed their meetings here tonight stand by the agreements involved in the newly-organized Lumber Carriers' Association, they will be assured of profit in a business that is certainly in need of organization. The plan agreed upon is of a business-like kind, and if it is carried out nobody will complain, as it is admitted on all hands that the owners of these vessels are justified in anything they may do to improve freights. It is agreed, first, that the minimum freight rates for 1898 shall be: Lake Huron and Georgian bay to Ohio ports, $1.25; Lake Michigan ports to Ohio ports, $1.37½; Sault Ste. Marie and Whitefish point to Ohio ports, $1.37½; above Whitefish point to Portage, to Ohio ports, $1.50; above Portage to Ohio ports, $1.62½. These rates shall prevail in all engagements, both contract and single trip, and all engagements, whether for single trips or season business, shall be made through brokers, excepting in the case of a vessel owner who may be shipping lumber from his own mill. Brokers are to be members of the association, paying a fixed fee for such membership, and violation of rules is to be punished in their case by expulsion. The secretary, Mr. A. H. Carpenter of Port Huron, is to be paid a salary of $100 a month, and the treasurer, Edward Reister of Tonawanda, is to be paid $50 a month. Other officers are A. W. Comstock of Detroit, president, and Alvin Neil of Port Huron, vice-president. It will be the policy of the association to encourage the payment of fair wages to 'longshoremen and to seek their good will, which will undoubtedly be secured, as the dock men will readily realize that without profitable freights their wages must be low. A printed summary of the full scheme of the association will be in the hands of all owners of lumber vessels in a few days, and the leaders of the movement, who are now the principal owners of this kind of tonnage, confidently expect that the organization will be fully perfected within a few weeks.

Farrar & Treffts, proprietors of the East Buffalo Iron Works, are preparing for extensive improvements in their plant. A new building of steel and brick will be 120 by 80 feet, and will be equipped with modern machinery, including an electric crane of 25 tons capacity.

Work on the new canal guard gate is still hung up by the non-arrival of material. It will require lively work to complete the improvements undertaken by the opening of navigation. It is a question whether or not they can be finished in time.—Sault Ste. Marie News.

MARINE REVIEW

DEVOTED TO LAKE MARINE AND KINDRED INTERESTS.

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The books of the United States treasury department on June 30, 1896, contained the names of 3,333 vessels, of 1,324,067.58 gross tons register in the lake trade. The number of steam vessels of 1,000 gross tons, and over that amount, on the lakes on June 30, 1896, was 383 and their aggregate gross tonnage 711,034.28; the number of vessels of this class owned in all other parts of the country on the same date was 315 and their tonnage 685,204.55, so that more than half of the best steamships in all the United States are owned on the lakes. The classification of the entire lake fleet on June 30, 1896, was as follows:

	Number.	Gross Tonnage.
Steam vessels	1,792	924,630.51
Sailing vessels and barges	1,125	354,327.60
Canal boats	416	45,109.47
Total	3,333	1,324,067.58

The gross registered tonnage of the vessels built on the lakes during the past six years, according to the reports of the United States commissioner of navigation, is as follows:

Year ending June 30.	1891	204	111,856 45
" " "	1892	169	45,968.98
" " "	1893	175	99,271.24
" " "	1894	106	41,984.61
" " "	1895	93	36,352.70
" " "	1896	117	108,782.38
Total		864	444,216.36

ST. MARY'S FALLS AND SUEZ CANAL TRAFFIC. (*From Official Reports of Canal Officers.*)

	St. Mary's Falls Canals.			Suez Canal.		
	1896*	1895*	1894	1896	1895	1894
Number of vessel passages	18,615	17,956	14,491	3,409	3,434	3,352
Tonnage, net registered	17,219,418	16,806,781	13,110,366	8,560,284	8,448,383	8,039,175
Days of navigation	232	231	234	365	365	365

*1895 and 1896 figures include traffic of Canadian canal at Sault Ste. Marie.

Officers of the Marine Engineers' Beneficial Association are to be congratulated on account of the business-like manner in which they are trying to increase the membership of their association on the lakes. They have again secured the assistance of National President Uhler in holding open meetings, and a circular which they are distributing among inquirers who are not members is framed in such terms as to demand attention. It deals with the principles and objects of the organization in a very clear manner and refers to legislation secured at Washington through the efforts of the engineers. The circular says: "It was through the determined efforts of this institution that the license tax of $10 per year was abolished; the marine hospital fee of 40 cents per month rescinded; and the bill to establish our standing as officers, and to protect American citizens in this profession passed by congress." The circular also refers to the beneficial features of the organization, in such matters as caring for sick members, looking after burial of deceased members, etc.

If exports of machinery and other branches of the iron trade follow the lead that has been taken by American locomotives within the past few years, there will be little difficulty in working up a sentiment favorable to American ships. Out of 1,251 locomotives built last year by standard makers in this country, 386 were for export. During 1896 there were constructed by the same makers 1,176 locomotives, and of this number 309 were for export. Judging from the number of inquiries and the general condition of the foreign trade in locomotives and also from the various reports as to foreign railroad construction, the number of locomotives expected to be turned out this year for contracts from abroad will nearly double the business of last year. There are inquiries at present with the leading locomotive builders from Finland, Japan, Brazil, Canada, Central America, the West Indies and Mexico.

Capt. Alex. McDougall is reported as saying that the vessels of the American Steel Barge Co. carried 1,500,000 tons of freight 1,000 miles on the lakes during the past season at an average cost of 66 cents a ton. This is probably not an exact statement of the business of the barge company's vessels during 1898. The whalebacks are not all modern freight carriers, as the capacity of some of them is little more than half that of the 400-foot ships, but it would seem that 66 cents is somewhat higher than their average cost of moving ore from the head of Lake Superior. One of the big fleets, all modern ships, is said to have made 15 per cent. on carrying ore entirely at 63½ cents. But it must be remembered, of course, that such figures can be quoted only in connection with ships that have been built within the past two years.

Officers of the Interlake Yachting Association elected in Cleveland on the 12th inst. are as follows: Commodore, Alex. I. McLeod, Detroit; vice-commodore, H. Tracey, Toledo; rear commodore, George T. Bliss, Erie; secretary and treasurer, Otto F. Barthel, Detroit; measurer, J. W. Hepburn, Toledo; fleet surgeon, Dr. E. E. Beeman, Cleveland; racing committee, George T. Andrews of Sandusky, George Waite of Toledo, John A. Rathbone of Detroit, and Edward Overbeck of Toledo; delegate to the National Yachting Union, E. W. Radder, Cleveland; delegates to Yacht Racing Union of the Great Lakes, Messrs. Radder, Barthel and F. B. Hower, of Buffalo. The regatta this year will be held the week beginning July 25. The by-laws were amended so as to make the racing rules conform to those in general operation on the great lakes.

The secretary of the navy has asked the present congress for an appropriation sufficient to build one large vessel of war—a battleship. The request will probably not be granted. In fact, it is hardly expected that funds will be secured for a few torpedo boats. What a difference between this policy and the wholesale ship building orders that are constantly being given out by the British government! The British admiralty has just invited tenders for four more first-class armored cruisers of 21,000 horse power and slightly less tonnage than the Powerful, which vessel is of 14,200 tons displacement.

Stockholders of the Erie Canal Traction Co., which is said to have the exclusive right to equip the canals of New York state with electricity, held their annual meeting in New York city last week. The following officers were elected: President, Louis A. Von Hoffman; vice-president, Frank W. Hawley; secretary and treasurer, Charlton T. Lewis; general manager, Commodore P. Vedder. The delay by the state in completing the enlargement of the canals, it was said, made any action on bond issues for electrical equipment impracticable as yet.

Shippers of lake coal are of the opinion that car ferry lines on Lake Michigan will soon cut an important figure in the soft coal trade of the northwest, on account of the large amount of coal that it is possible to move in this way during the winter. Shipments on ferry lines now in commission were very heavy during the mild weather period of the past month.

There is a real scarcity of labor in some of the iron mining districts of Lake Superior, notwithstanding the recent advance of about 10 per cent. in wages, which was quite general throughout the mining region. Several of the Mesabi companies have advertised for men, offering $1.65 a day, and it is said that contract men average $2 a day.

In an article containing the names of the steamers Sheffield and North Star last week the Review said the North Star was sunk on Lake Superior. The error would readily be noted by vesselmen who remember the collision between these two vessels, in which the Sheffield and not the North Star was sunk.

A bill has passed both the senate and house in congress appropriating $40,000 for the construction or purchase of a suitable vessel for revenue cutter service on the Yukon river, Alaska. The vessel will have to be light draft and built in sections to be put together on the river.

A very considerable quantity of timber from the Pacific coast is being brought 1,800 miles to the head of Lake Superior, in the heart of the white pine country, for ore dock construction.

Mr. H. F. J. Porter of the Bethlehem Iron Co. presented a paper on "Nickel Steel for Crank Pins and Axles" to the Western Railway Club at their meeting on the 15th inst.

New vessels now under way in Bath ship yards, mainly at the Bath Iron Works, aggregate $2,000,000 in value. About 2,000 men are employed in these ship yards.

Favoring the Proposed Lake Gunboat.

Officials of the navy department are certainly doing all in their power to secure an appropriation from congress for a gunboat to replace the U. S. S. Michigan on the lakes. In a letter to a member of congress who shows interest in the bill recently introduced for this purpose, Secretary Long of the navy department says:

"Owing to repairs made from time to time the Michigan is now in good condition so far as seaworthiness is concerned, but having been built in 1844, she is of antiquated and obsolete type and of little or no value as a vessel of war. In a report concerning this matter the bureau of construction and repair says it would be to the interest of the government to have the Michigan replaced by a vessel which would have features of note other than antiquity. A gunboat upon the great lakes should differ from composite vessels like the Marietta and Wheeling in being unsheathed and of not less than 15 knots trial speed. Lieutenant Commander Rush of the Michigan states that on account of its breadth with the houses on the sides for paddle wheels the Michigan is unable to pass through the Welland canal into Lake Ontario. During the open season on the lakes the vessel is employed in drilling the naval militia of Illinois, Michigan and Ohio, and surveying work, for both of which it is ill adapted, being clumsy in the water and inconveniently constructed. In view of the foregoing, the navy department considers it important that a new vessel should be built and put upon the great lakes at an early date, and as soon as the condition of the public finances will permit the requisite expenditure. This should be done, provided congress considers that such action would not be in violation of the agreement of 1817 between the United States and Great Britain relative to the naval forces to be maintained on the great lakes."

There are now in use throughout the United States some fifty steam towing machines of the kind manufactured by the American Ship Windless Co. An order has just been received by the Providence company for one of these machines to go to Esquimalt, British Columbia, for a tug building there. In the equipment of the modern 6,000-ton steel barges of the lakes they are regarded as of about as much importance as the ship's rudder. Within five months orders for nine of these machines have been booked by the American Ship Windlass Co., six of them to come to the lakes. The Minnesota Steamship Co. will have six vessels carrying towing machines next season, and the Bessemer Steamship Co. (Rockefeller fleet) will have nine.

River Steamers and Barges.

The Moran Bros. Co. of Seattle, Wash., has favored the Review with descriptions of the large number of river boats which they have under construction, and which will exceed $1,000,000 in aggregate value when completed. They are building at their Seattle yard seventeen river steamers and twenty-five barges, in addition to the torpedo boat Rowan for the United States navy, which is nearing completion. Of the steamers, fourteen are for the Yukon Co., the other three being for the Seattle & Yukon Steamship Co. The steamers for the Yukon Co. consist of six vessels that are each 260 feet long and 50 feet beam; six of 175 feet length and 35 feet beam, and two of 100 feet length and 22 feet beam. All of them are of the stern-wheel, light-draught type. The twelve vessels of 260 and 175 feet length are designed and fully equipped for passenger and freight service. They are to have three decks with the best cabin accommodations. The two vessels of 100 feet length are towboats for river and coast service. The twenty-five river barges referred to above are also being built for the Yukon Co. They are to be 30 by 120 feet with flat bottoms. They are intended to carry deck cargo only and are to have a freight house on deck. All of these steamers and barges are for service on the Yukon river, Alaska, and are to be delivered when navigation opens on the river the coming season. Their approximate value is $1,000,000.

Vessels under construction for the Seattle & Yukon Steamship Co. consist of two passenger and freight steamers, each 190 feet long and 32 feet beam, and a towboat 100 feet long and 22 feet beam, all of the stern-wheel, light-draught type. The approximate value of these is $100,000, and they are also to be in service during the coming season on the Yukon river. Machinery for all these steamers was designed by the Moran Bros. Co. and is being built by them in their shops at Seattle. Each steamer is to be equipped with a complete electric light plant.

The Moran Bros. Co. also operates a ship yard at Dutch Harbor, Unalaska, where they have under construction two river steamers for passenger service, each 190 feet long and 32 feet beam, and one river tow boat 120 feet long and 26 feet beam, all of the stern-wheel type. A fourth steamer at Dutch Harbor is 140 feet long and 28 feet beam. This is the steel hull that was purchased at Toledo, O., and shipped west in sections. It is being re-constructed with new house and cabin, and will be fully suited to passenger and freight service. Several river barges are also being constructed at this yard. All the vessels building at Dutch Harbor are to be delivered in the early spring to the North American Transportation & Trading Co., for whom the Moran Bros. Co. have already constructed several steamers.

A contract for a steel steamer 105 feet long, 21 feet beam and 11 feet depth, to be used by United States engineers in Delaware bay service, has been awarded to the R. M. Spedden Co. of Baltimore. J. S. Beacham & Bro., also of Baltimore, will build a wooden harbor tug 60 feet long, 15 feet beam and 7 feet deep, for L. Waggner & Co. Neafie & Levy of Philadelphia have also secured another contract. They will build for the Moran Towing Co. of New York a steel sea-going tug, which will be 92 feet long, 19 feet beam and 10.2 feet depth of hold.

Charts of the lakes made by the British admiralty; charts made by the United States hydrographic office, navy department, and charts made by the engineer corps of the United States army are all kept in stock by the Marine Review, 409 Perry-Payne building. All of them are corrected to date, and prices represent simply the cost of paper and press work.

Ex-Governor John T. Rich of Michigan has been appointed collector of customs at Detroit.

Capt. McDougall's Visit to the Pacific.

While in Washington, a few days ago, Capt. Alex. McDougall of the American Steel Barge Co. gave the commissioner of navigation some valuable information regarding shipping conditions on the North Pacific. He had just returned from Seattle, where he studied the Alaskan situation from the standpoint of the ship owner. Capt. McDougall is of the opinion that there are many channels in the Yukon which have not been discovered, but which, when located, will materially shorten the distance to the Alaskan gold fields by an all-water route. He advised the treasury department officials to have a survey of the mouth of the Yukon made by the coast and geodetic survey as soon as possible. He predicts that within the next five years 1,000,000 people will go into Alaska and that these people must import their supplies. Whether it will be from Canada or the United States is a question depending upon the cheapness of transportation, and for this reason he urged the treasury officials to do everything possible to aid in the discovery of new routes and the proper marking of those already established. He thinks that the British authorities will use every effort to make the Stikine river route the most popular one, as it is through British territory, and, of course, goods must be carried by this route on Canadian vessels. Capt. McDougall believes that many of the people from the east who go to try their fortune in the Alaska gold fields will become discouraged, and, returning, will seek homes in the great northwest, in the stretch of country from the Pacific coast to the great lakes. Most of the people he saw going to Alaska were of a class far superior to the average immigrant to the northwest, both physically and mentally, and he thinks those forced to return because of ill-luck in the gold fields, and who seek homes in the northwest, will be a valuable accession to that country.

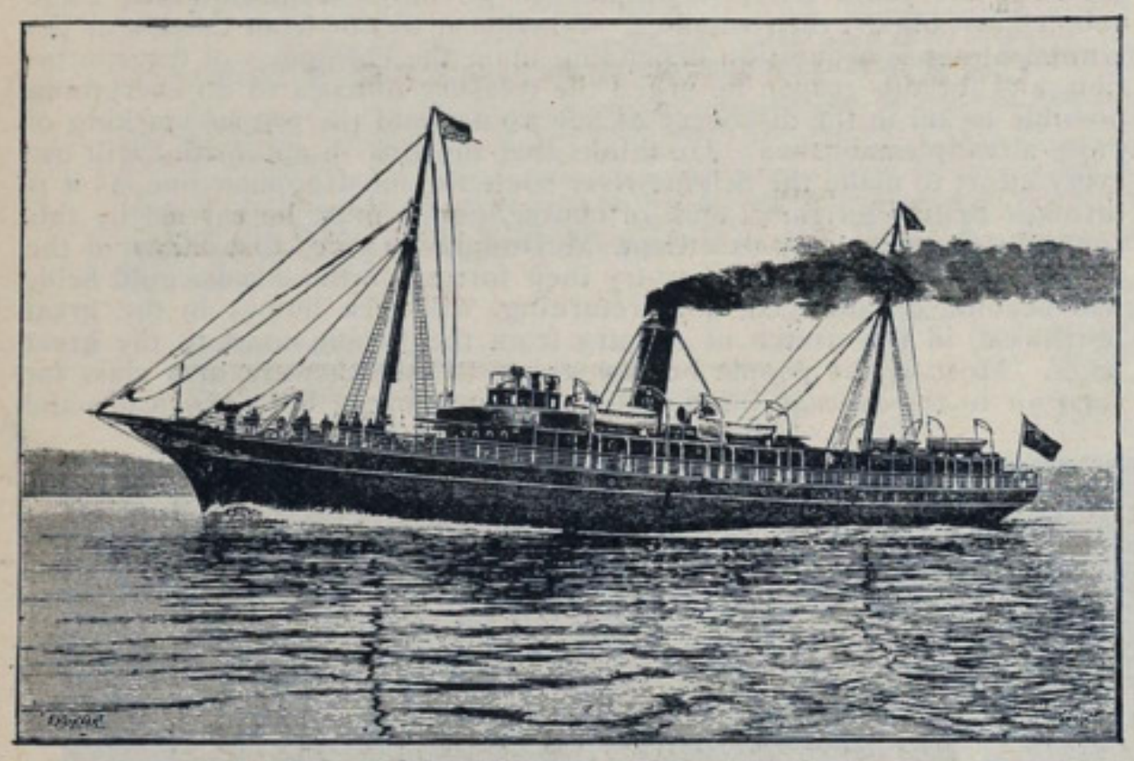
DELEGATES TO NATIONAL CONVENTION, MARINE ENGINEERS' BENEFICIAL ASSOCIATION, HELD AT WASHINGTON, D. C., JANUARY, 1898.

James H. Van Vlissingen, for the Winthrop Harbor & Dock Co., has received of the secretary of war a permit for the construction of a 20-foot harbor upon the property of the company, north of Waukegan, in Lake county, Illinois, the work to be done under the supervision of Capt. George A. Zinn, U. S. A., the engineer officer in charge of that location. Two parallel piers will be constructed 1,700 feet long, affording an entrance to the harbor 350 feet wide. The inner basin will have the same width, and slips will be constructed upon both sides 150 feet in width. The latter work will be undertaken only as required by the demand. The initial outlay is estimated at $200,000. The company is to commence the construction of the harbor with the opening of navigation. The service of the Elgin, Joliet & Eastern Railway (outer belt line of Chicago), is to be extended to Winthrop harbor, thus placing that point on an equality, in respect to freight rates, with the Waukegan. The harbor and dock company owns 2,700 acres, of which 700 lie upon the flat east of the Chicago & Northwestern Railroad, and 2,000 acres upon the bluff west of the railroad right of way. A. V. Powell, civil engineer of Chicago, will have charge of the harbor construction for the company, and O. C. Simonds, landscape gardener, will superintend the laying out of the lands.

A stern frame that is being forged at the works of the Delaney Forge & Iron Co., Buffalo, for the Rockefeller steamer building at West Bay City will weigh 15,000 pounds, and the rudder post 10,000 pounds. This firm is also forging rudder and stern frames for the two steel barges building at West Bay City for the Rockefeller fleet. They will also furnish forgings for the package freight steamer that is being built by the Detroit Dry Dock Co. for the Western Transit Co., and they have orders for several other marine jobs of less importance.

Built to go Through Drift Ice.

The steamer Bruce, illustrated herewith, was built for a service in which she will encounter considerable ice, and certain features of her construction will therefore interest readers of the Review. Her route is between Port au Basque in Newfoundland and Sidney, Cape Breton, in connection with the Newfoundland and Canadian systems of railways. The distance is 100 miles and the vessel was designed to make the run in about six hours. Not only are storms of frequent occurrence on this route, but in the months of winter and spring large quantities of drift ice are commonly encountered. The vessel was built on the Clyde by Messrs. A. & J. Inglis. To obtain the necessary speed and carry all that was



required on a suitable draught of water, it was essential that the material should be of steel, but in view of the severe structural and local stresses to which she must inevitably be subjected when at sea, it was necessary to afford adequate stiffening and means for preventing penetration or abrasion by ice. Hence the frames are more closely spaced than is usual in vessels of her size. Numerous web frames associated with arched supports at the main deck and adjacent to the water line are fitted throughout her entire length, and a belt of 3-inch planking, with a steel sheathing over it at the fore part of the vessel, is further provided. Dimensions are 230 feet length, 32½ feet beam and 22 feet depth. The illustration, which is from the Engineer of London, shows the steamer when running at a speed of upwards of 15 knots on a measured mile. She has berths for seventy first-class and 100 second-class passengers, and when fully laden she carries 350 tons of cargo in her holds and 250 tons of coal in her bunkers. Engines are triple expansion, having cylinders 26 inches, 42 inches and 65 inches in diameter with 42 inches stroke. Four boilers, allowed 160 pounds pressure, are fitted with the Howden system of hot draft. The vessel recently made the voyage to Newfoundland at a mean speed of very little under 15 knots.

The Ship Masters' 1898 Directory.

Grand Financial Secretary Collier is preparing for the publication of the 1898 directory of the Ship Masters' Association. This directory has been improved each year until there seems to be little, if anything, to be added to it. Advertisers will be classified in a new way in the 1898 book and considerable new information of value to captains will be added. Arrangements have been made to have a list of vessels as well as a list of vessel owners included in the coming edition. Members of the association who have suggestions for improvement of the book should correspond with the grand financial secretary.

As a result of the recent visit of Capt. Geo. P. McKay and other vessel owners to Washington there is a clear understanding between the vessel owners of the lakes and officials of the light-house board as to appropriations that will be sought from congress for aids to navigation. The board will support the efforts of the Lake Carriers to secure a liberal appropriation for more gas buoys, and the vessel owners will do all in their power to have congress provide two new light-house tenders for the lakes, both of them to be suited to gas buoy service and to be so constructed that they work through heavy ice if necessary in order to permit of buoys and other aids remaining on their stations late in the fall.

Rubberbestos is the name of a new sheet packing manufactured by A. W. Chesterton & Co., Boston, Mass., and which is meeting with great success. Being compounded of rubber and asbestos it is very durable and stands high pressures perfectly. This firm is also doing a large business in their Metalbestos piston packing. This packing is particularly adapted for high pressures. Being made of asbestos it cannot burn or char, and the rubber core gives it sufficient elasticity, while the specially prepared metallic wire used on the outside reduces friction on the rod, and adds greatly to its success in resisting high pressures. It is already largely in use on steamers in the Atlantic coast trade, as well as in a large number of the lake steamers. The manufacturers will be pleased to send samples of either of these packings on application.

Bernard Sinn, a graduate of the school of marine engineering and naval architecture at Cornell University, and who has had considerable practical ship yard experience, is now employed with the Harlan & Hollingsworth Co. of Wilmington, Del. He was formerly with John Dialogue & Son of Camden, N. J. Preparations will soon be made for launching Mr. Howard Gould's costly yacht at the Wilmington works. The vessel is well along toward the launching stage. Mr. Gould paid a visit to the yard, a few days ago, and looked over the work of construction.

Ships of Foreign Register Under American Control.

In his arguments against ship subsidies while serving under the Cleveland administration, Mr. E. T. Chamberlain, United States commissioner of navigation, laid great stress on the claim that there is a large amount of American capital invested in vessels that are not of American register. No definite figures on this score have ever been collected, but as a result of some partial investigations made by the state department the free ship advocates are again using the same argument. The Philadelphia Record says:

"It is generally assumed that lines sailing under an alien flag turn all their profits over to foreign capitalists, and that so much money is abstracted from the national income to enrich people not of our nationality. This is only partially true. Ownership has nothing to do with the flag. If the flag should go with the investment it could no longer be said that 'Old Glory' was seldom seen in Mediterranean and in South American ports. If oceanic transportation be lucrative it might be supposed that American capital would engage in it. So it does; but because the investors choose to buy their ships in the cheapest market, as a result a large number of steamers owned by our own citizens sail under British, French and Belgian colors. Of course, it is difficult to determine who are the real owners of stock in international navigation companies, partly because the shares are constantly changing proprietorship, and partly because the companies do not open their books to the world. However, the department of state has made some partial investigation of the matter, with results which will surprise many people. For example, the International Navigation Co., with an immense capital, and to which the steamships, Paris, New York, St. Paul and St. Louis belong, is controlled by American capital. Yet out of its fleet of twenty-four steamers only nine carry the American flag; of the rest nine sail under the Belgian and six under British colors, although the earnings are distributed largely among American owners. According to this report of the state department, out of sixty-one lines or companies trading between New York and foreign ports, there are seventeen for which American investors have furnished nearly all or a controlling part of the capital. Of these seventeen lines only six sail under the American flag. Out of 359 regular steamers in foreign commerce sailing to and from New York sixty-nine are controlled by American capital, while only twenty-seven float the Stars and Stripes. This fleet of sixty-nine vessels represents an investment, as nearly as has been ascertained, of $18,000,000 devoted to oceanic commerce."

Take Philadelphia as another example. There are nine companies, controlling forty-five steamers, which trade regularly with Philadelphia. Of these but four have a United States registry, according to the report; but eleven are controlled by American investors. As a sample, the Earn line has a New Jersey charter and $1,000,000 of American money in it; but all of its five steamers carry British colors. Of the ten steamers of the International line four sail under the Stars and Stripes, and six under the British and Belgian flags; but the investment is chiefly American. Again, of the sixty-one lines sailing regularly out of New York there are eleven companies which charter their vessels under whatever flag they may carry. The profits accrue to the charterers, who are largely American citizens and almost wholly residents of New York. The steamers in question sail to all parts of the world—to the Baltic, the Mediterranean, the Caribbean, the China seas, the Red Sea, and even to South Africa. This curious state of affairs grows out of the ancient policy of the United States government in restricting its registry to vessels built within its jurisdiction and in keeping its immense coast trade in the hands of its own citizens. But, like many another attempt to direct the enterprise of people into artificial channels, it does not work. Legislation cannot hinder an Englishman from buying a Delaware-built schooner and trading where he pleases with it, nor an American from owning a Norwegian or Belgian steamer and running her in and out of one of our own seaports. These facts overthrow the assumption that all freights and passenger fares earned under a foreign flag go to enrich aliens, or take so much money out of the country. Of course, it is very difficult to get exact data; but those given are the least favorable to American shipping investments, as they only touch what the government investigation was able to uncover. They simply show that the flag has little to do with ownership, and that American merchants, like all others the world over, hire or buy steamers where they can get them cheapest. The shipping interests of the United States are greater and more enterprising than the registers show, and it is time they had the recognition of their own government."

Praise Justly Won.

The hard times of the past three or four years have been very destructive to all industrial affairs, and the railways have had an unusual amount of difficulty in making both ends meet. Railroads that have, during this trying period, earned dividends while at the same time affording high-class transportation facilities to their patrons, have, indeed, been fortunate. And such an event speaks well for the management of the roads.

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No. 9, Feb. 17.

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U. S. ENGINEER OFFICE, Duluth, Minn., January, 31, 1898. Sealed proposals for dredging in Portage Lake Ship Canals, Keweenaw Point, Mich., will be received here until noon, February, 28, 1898, and then publicly opened. Information furnished on application.
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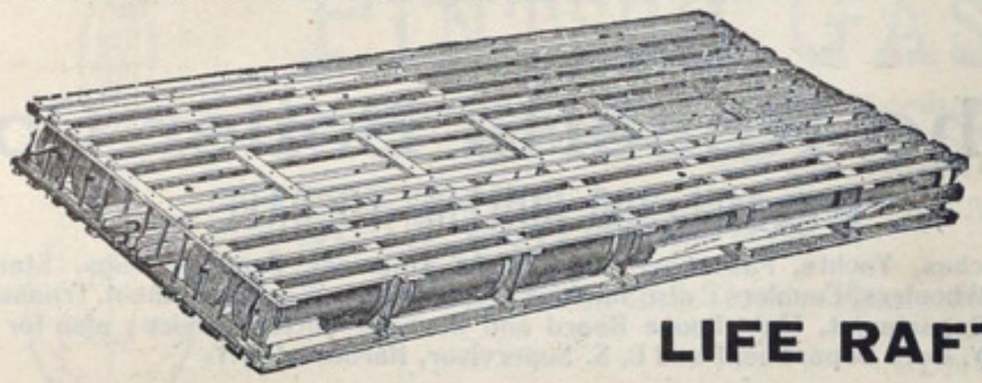

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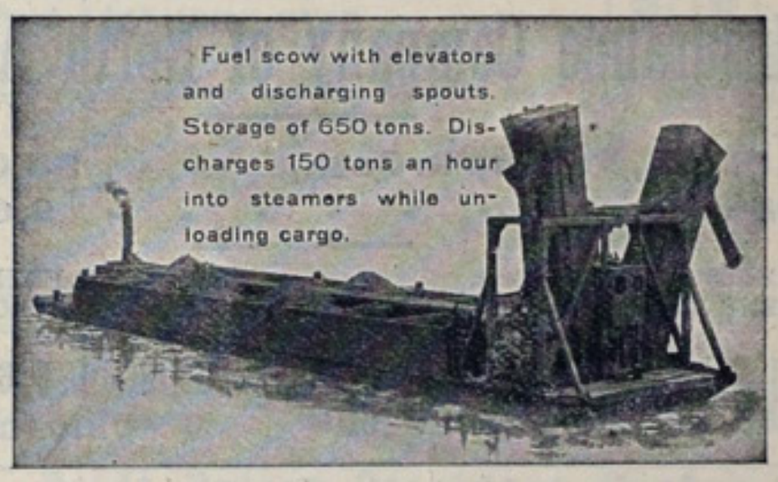
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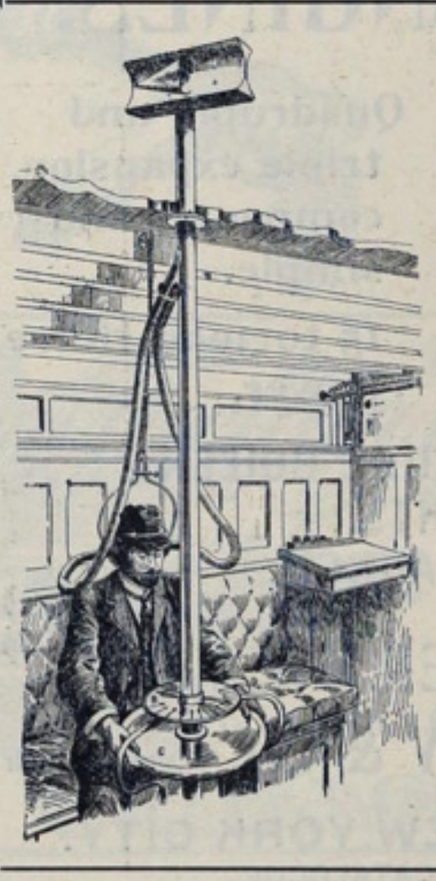

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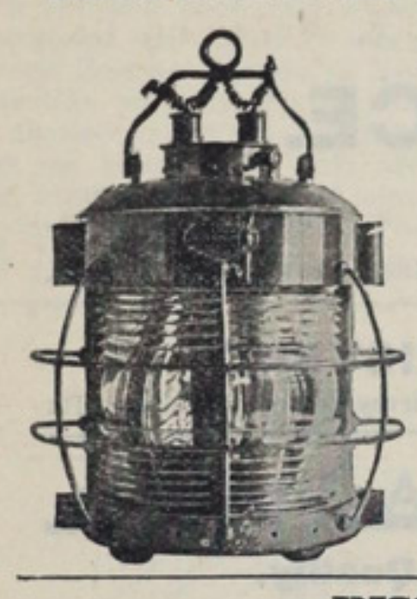

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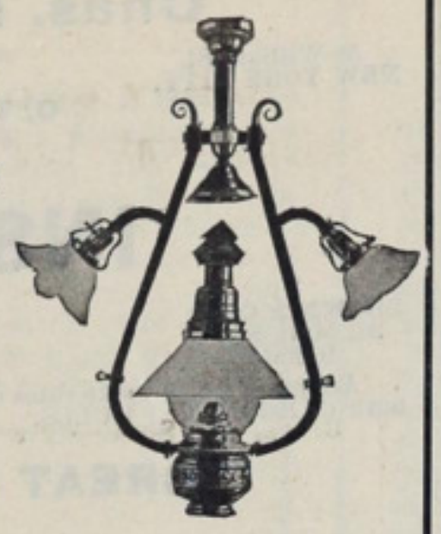

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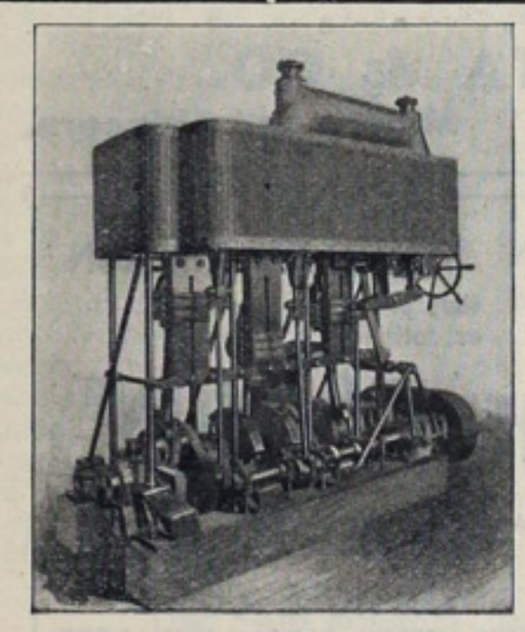

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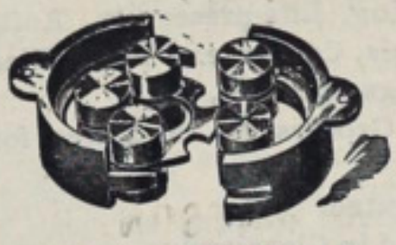

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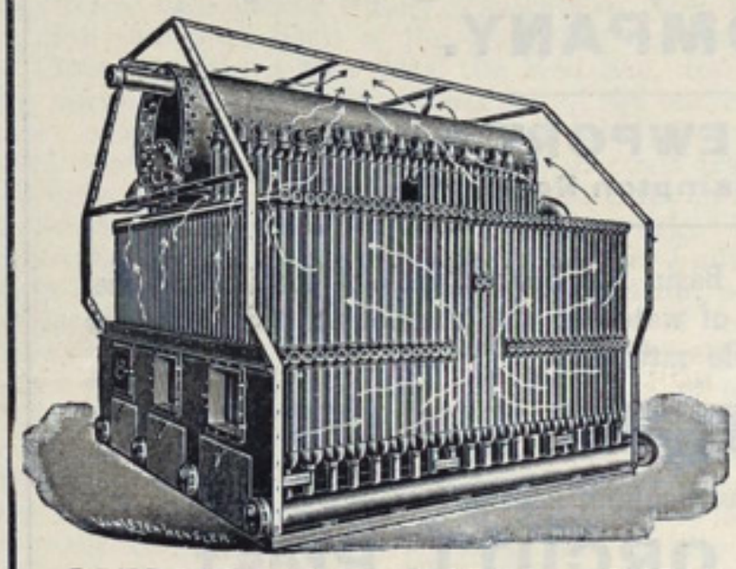

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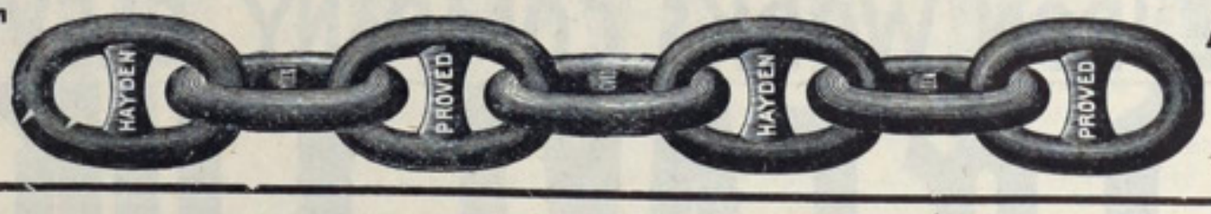

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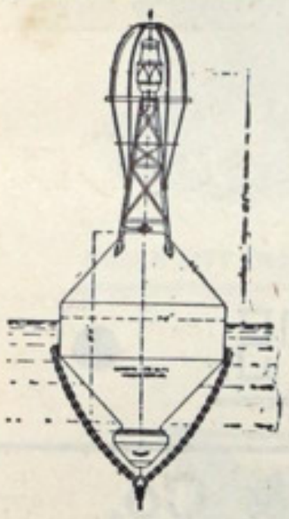

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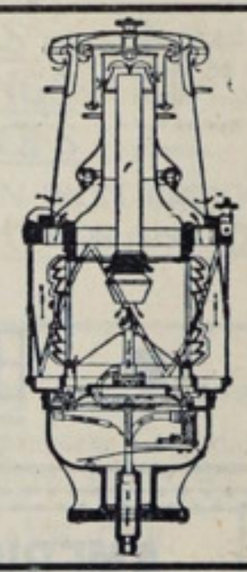

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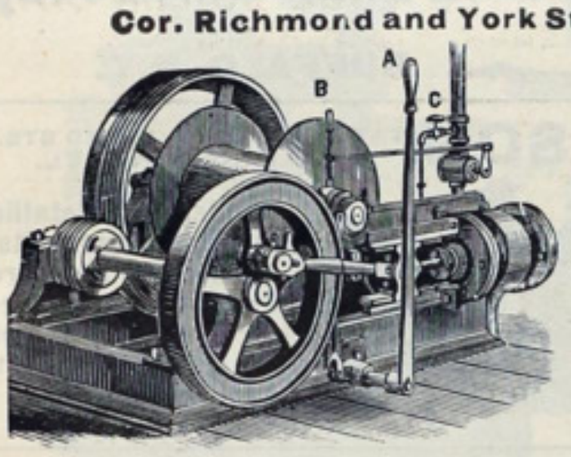

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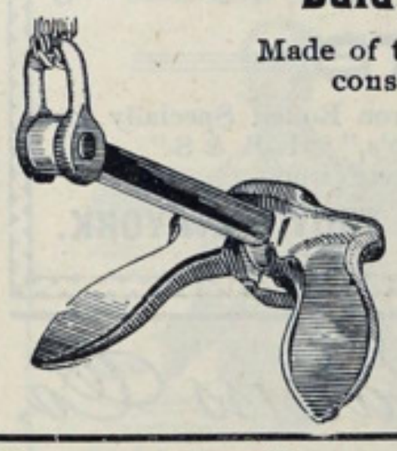

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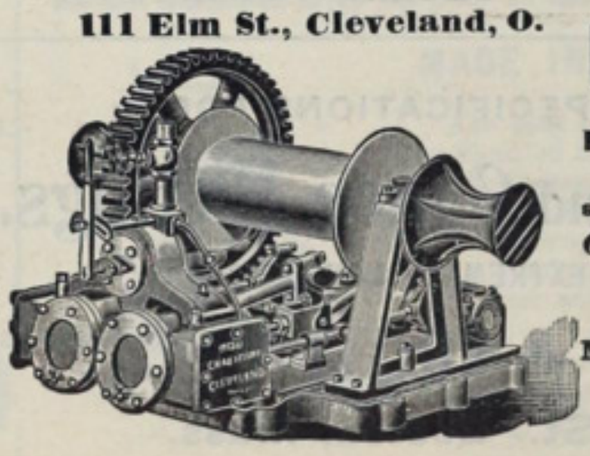

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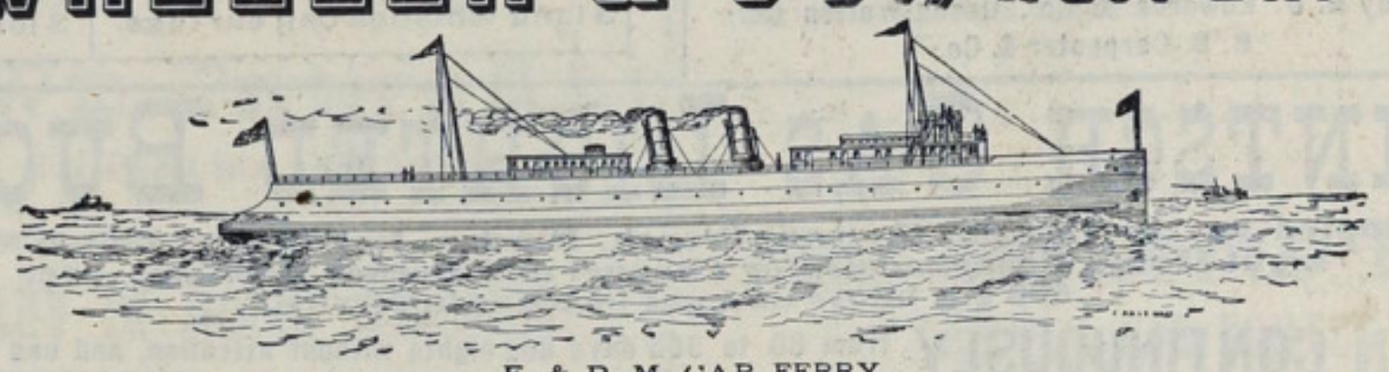

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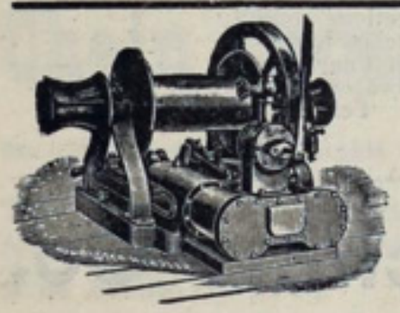

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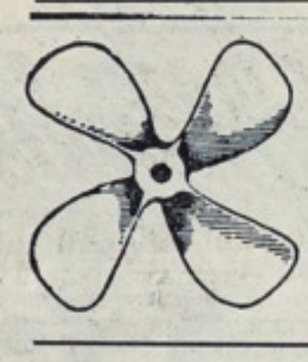

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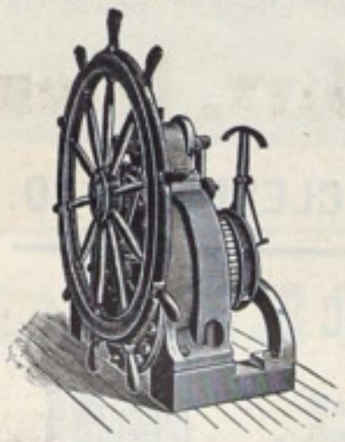

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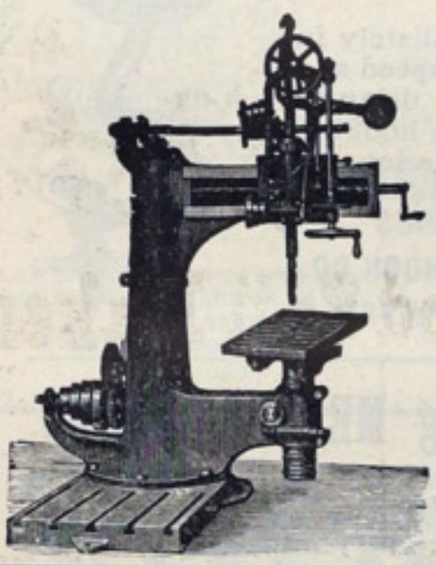

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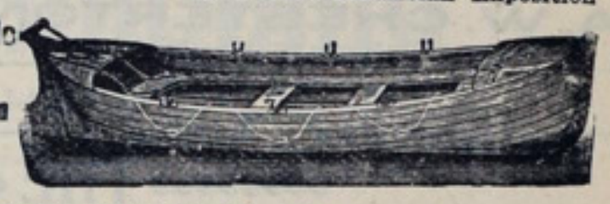

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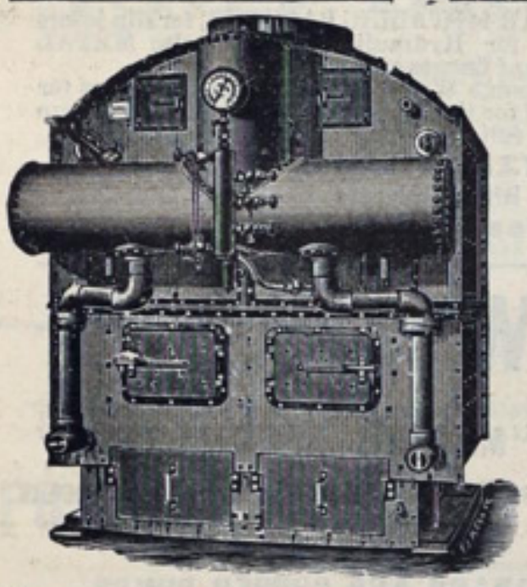

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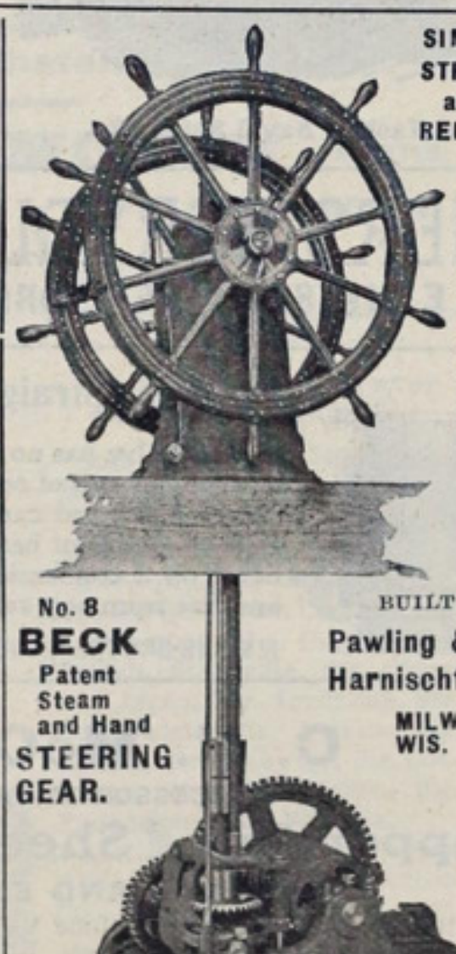

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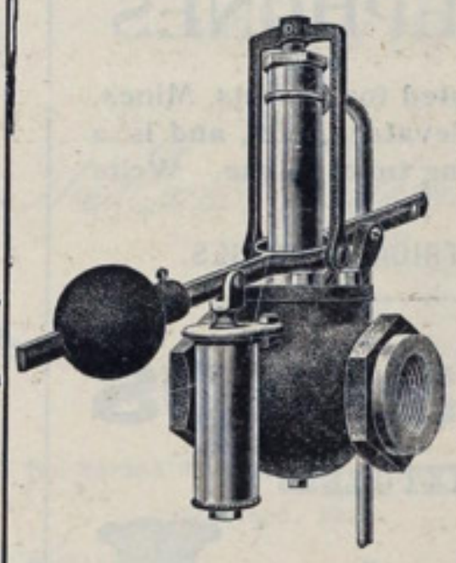

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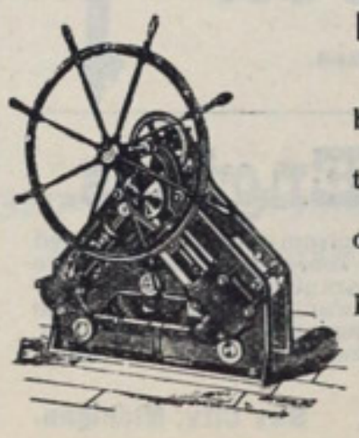

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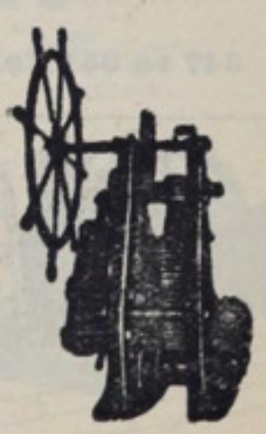

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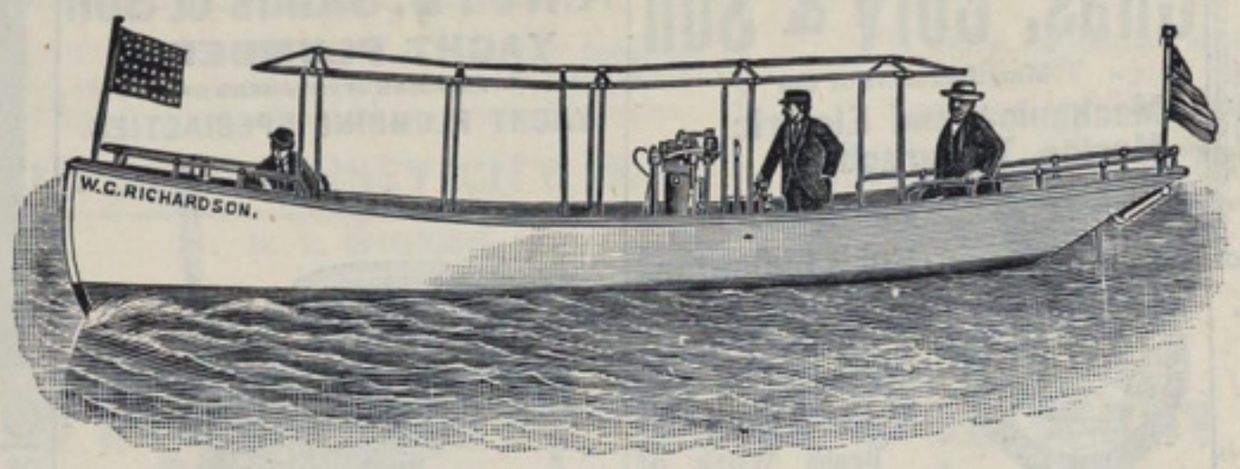

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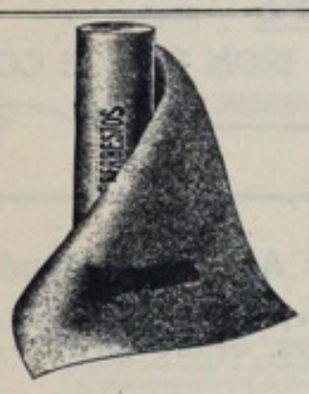

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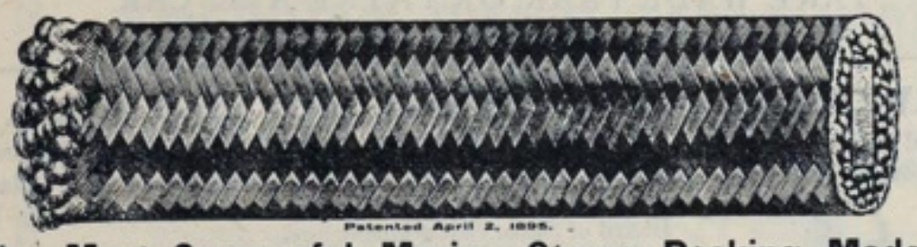

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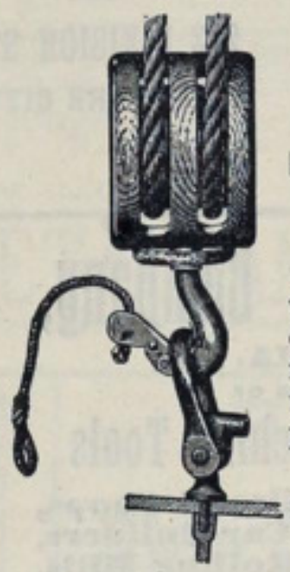

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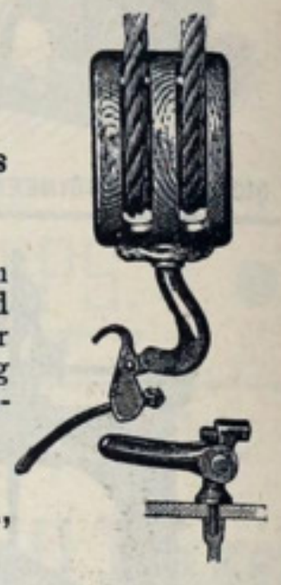

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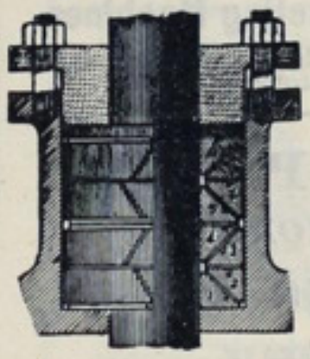

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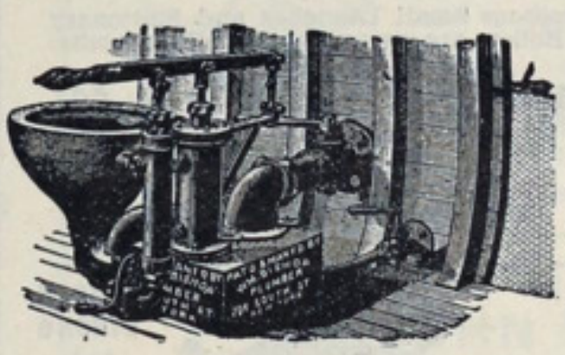

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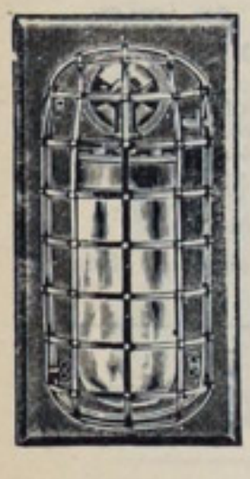

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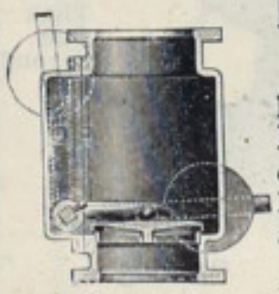

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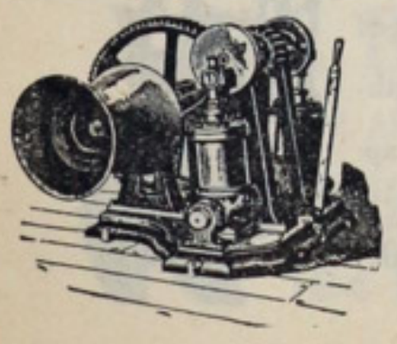

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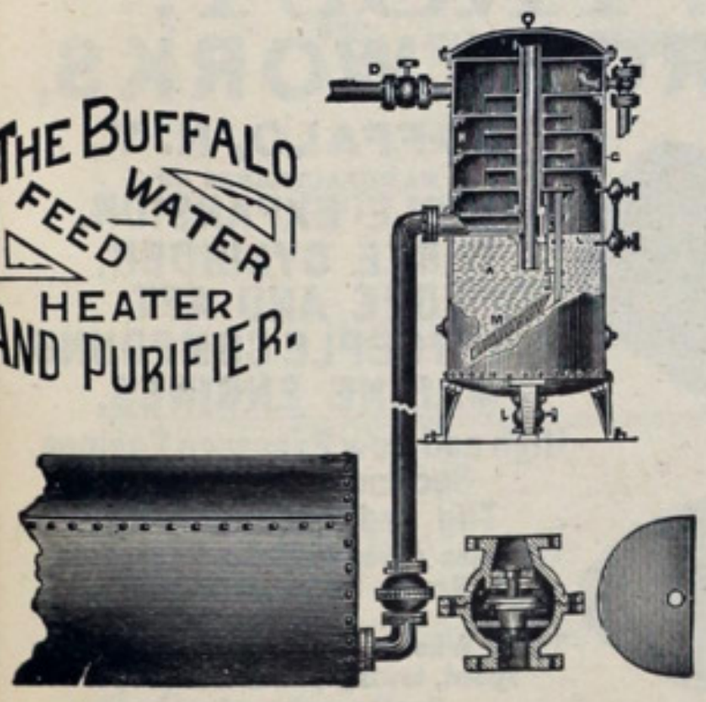

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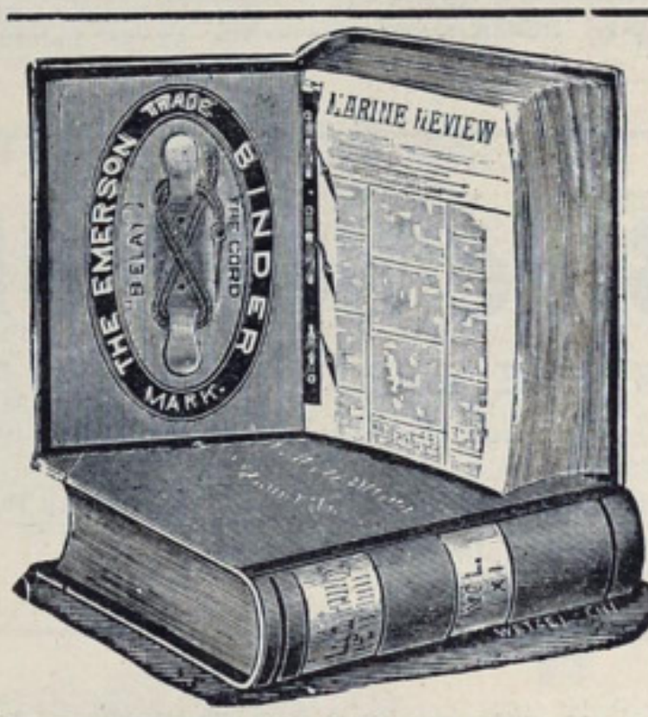

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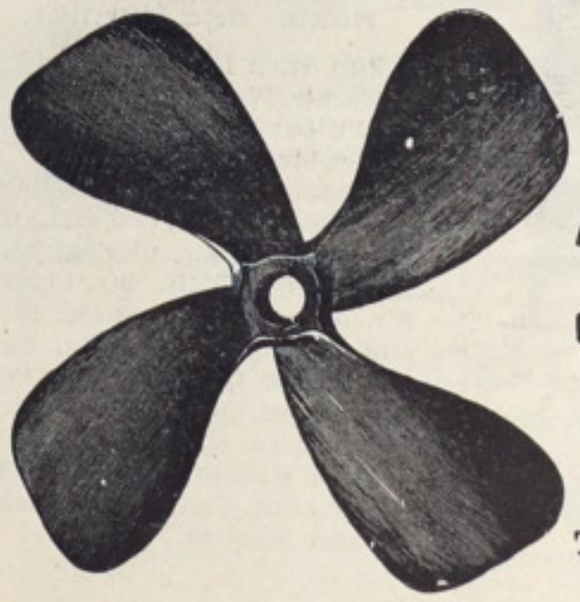

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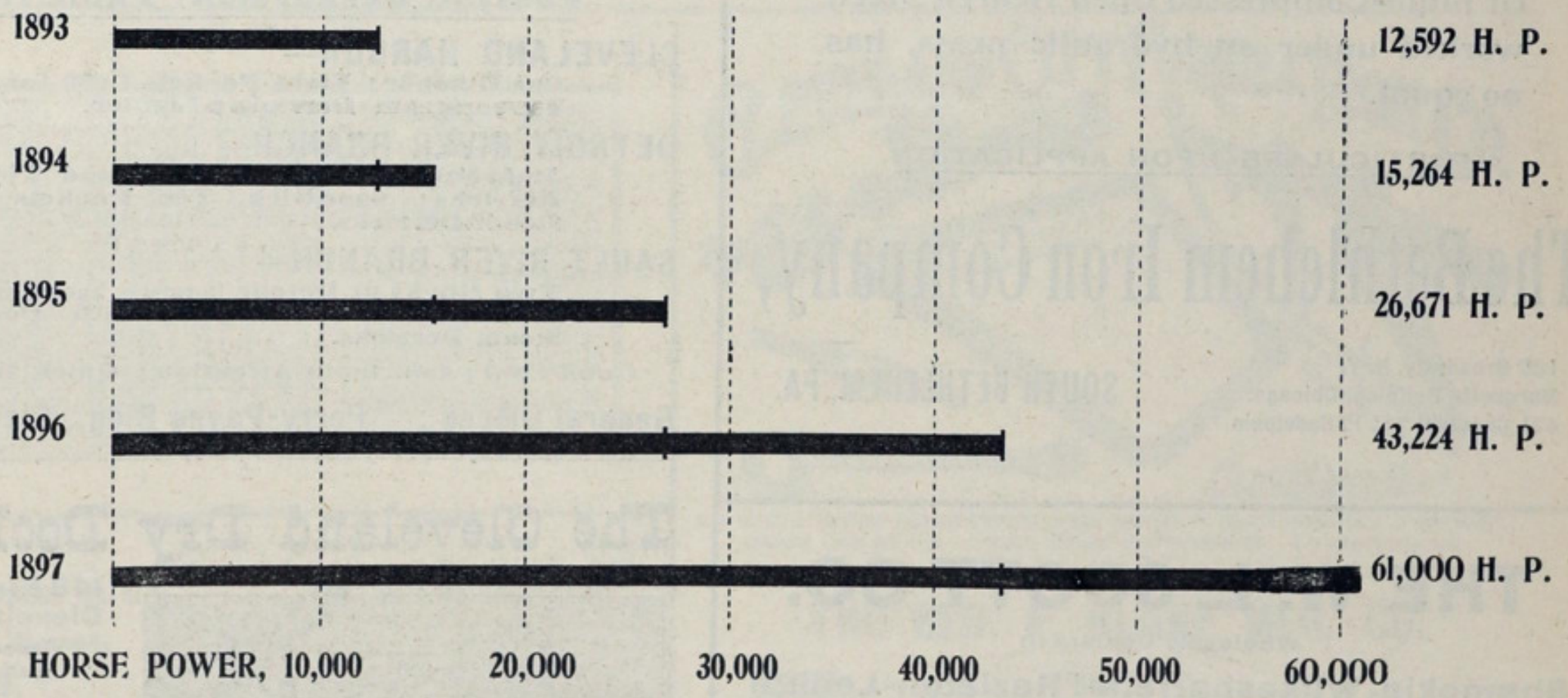

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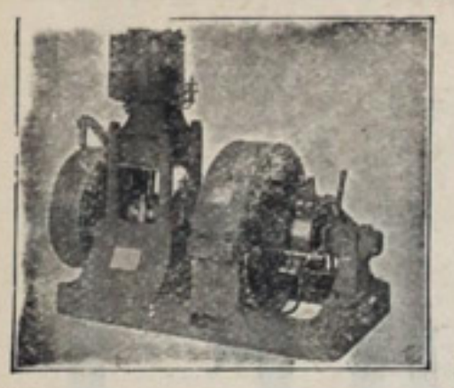

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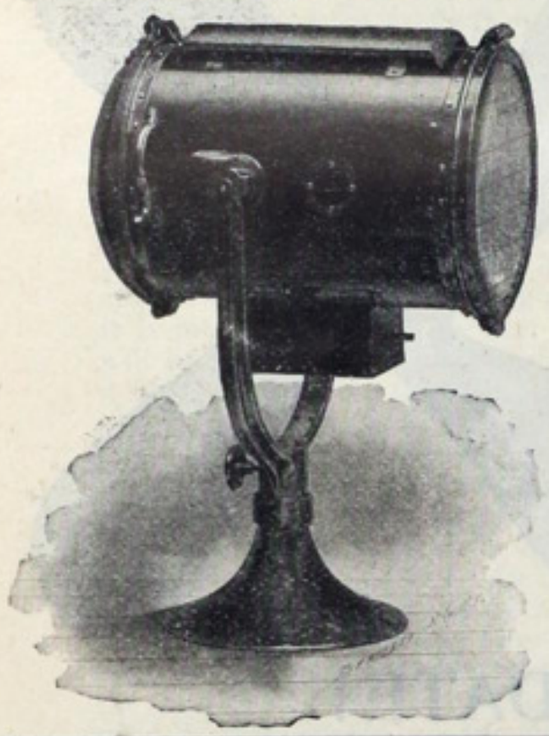

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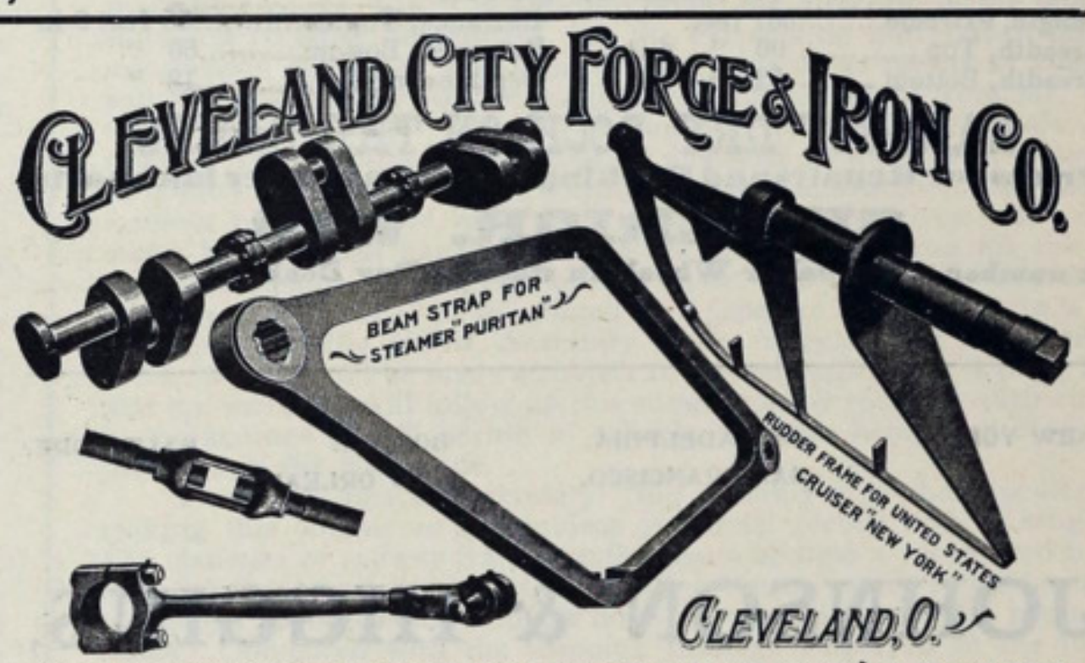

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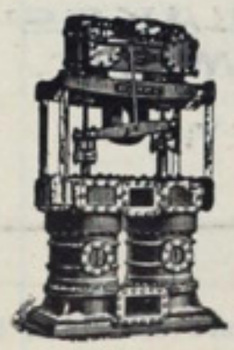

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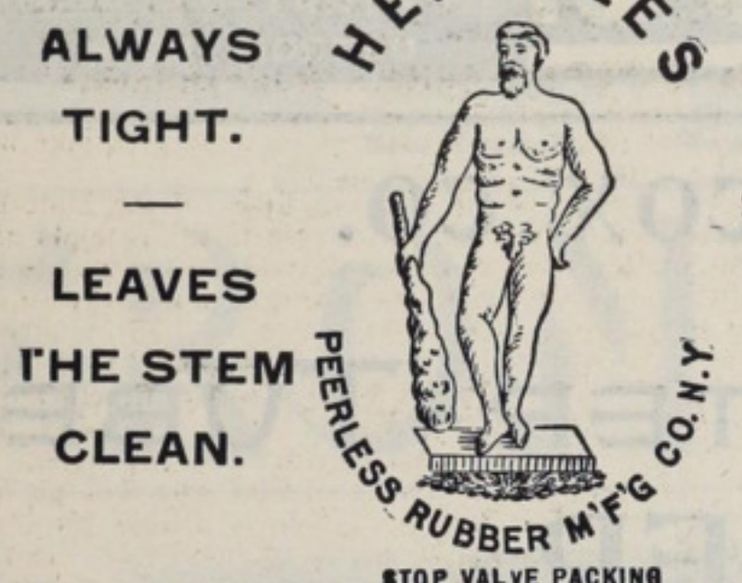

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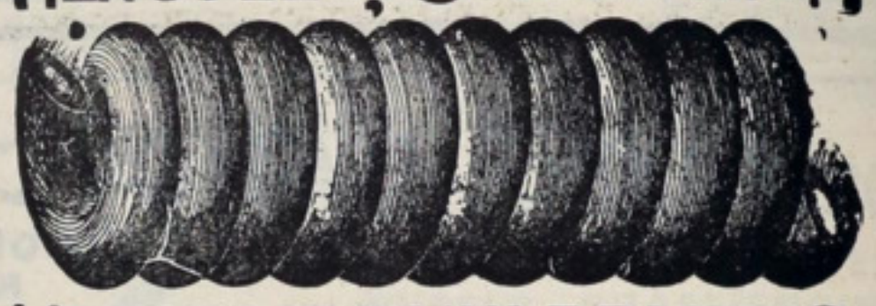

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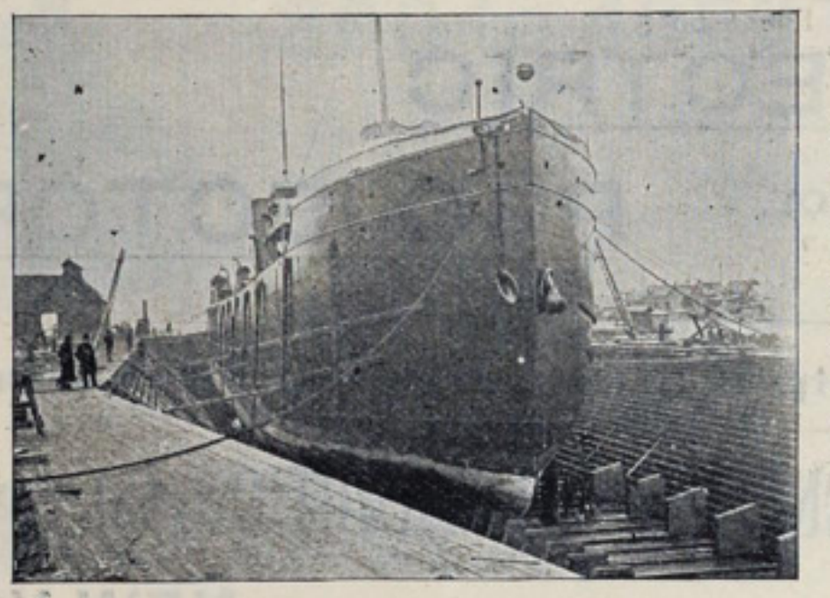

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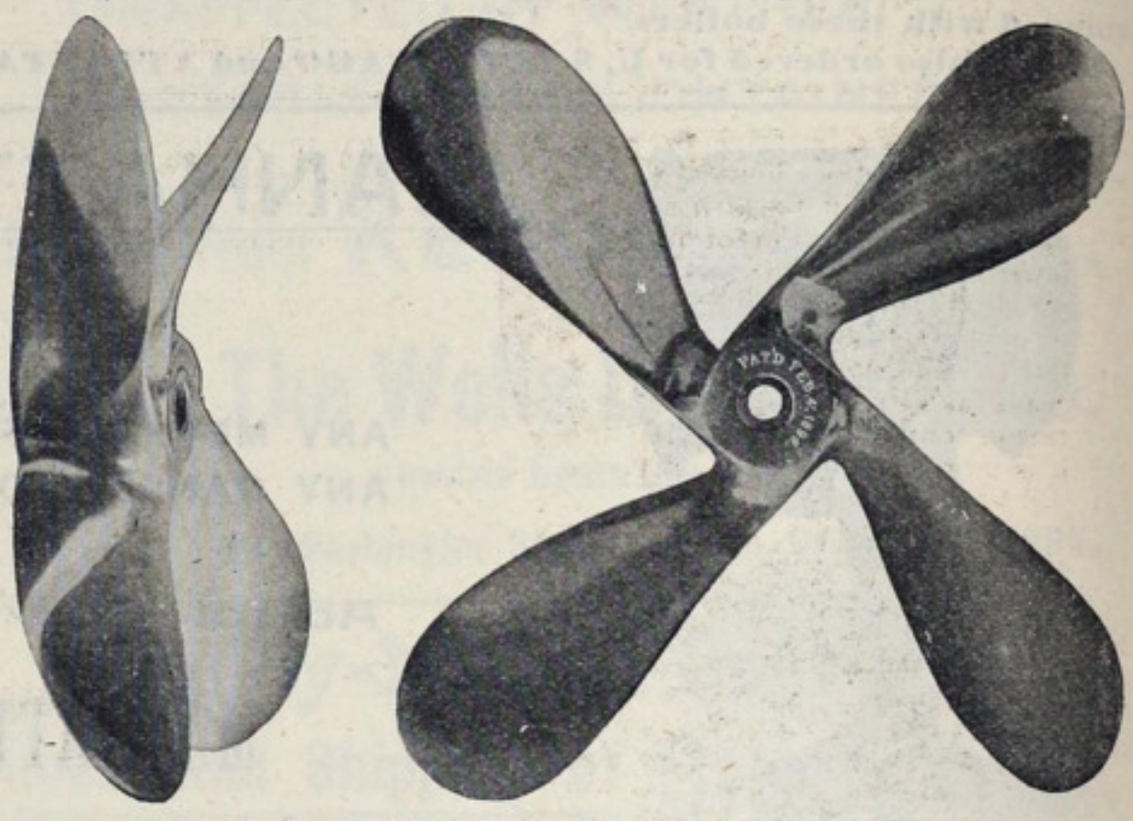

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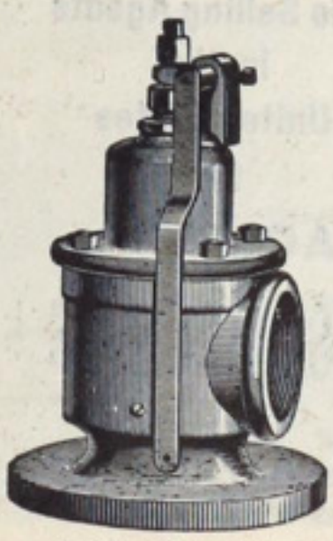

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